Algebra • Number Patterns

Instructional Time: 1 day

Common Core Standard

CC.3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

Lesson Objective

Identify and describe whole-number patterns and solve problems.

Essential Question

¿Cómo aplicas las propiedades para explicar patrones en la tabla de suma?

Materials

- MathBoard
- Addition Table
- orange and green crayons
- Math Journal
- HMH Mega Math
- *i*Tools Number Charts

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to describe whole number patterns. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of whole numbers to develop sound mathematical practices by asking these questions.

- *¿Cómo descubres los patrones al ver la tabla de suma?*
- *¿Cómo aplicas las propiedades para explicar tu respuesta?*
- *¿Cómo sabes que la respuesta es razonable cuando escribes enunciados numéricos?*
- *¿Cómo representas números pares e impares?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, see RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these pattern concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 2, 7, 14, 16

4 Summarize Approximately 5 min.

Essential Question

¿Cómo aplicas las propiedades para explicar patrones en la tabla de suma?

Puedo aplicar la propiedad conmutativa para explicar que cuando uso la tabla de suma, el orden de los sumandos no afecta la suma. Puedo aplicar la propiedad de identidad para explicar que cuando sumo cero a cualquier número no cambia la suma.

Math Journal

Write the definitions of the Identity Property of Addition and the Commutative Property of Addition. Use the addition table to provide examples of each.

Round to the Nearest Ten or Hundred

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

Lesson Objective

Round 2- and 3-digit numbers to the nearest ten or hundred.

Essential Question

¿Cómo puedes redondear números?

Materials

- MathBoard
- Animated Math Models
- Math Journal
- HMH Mega Math

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use place value and estimation to round numbers. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of place value and rounding to develop sound mathematical practices by asking these questions.

- *¿Qué información necesitas cuando redondeas un número?*
- *¿Qué estrategia usarías para redondear un número dado?*
- *¿Qué sucede si usas otra estrategia?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these rounding concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 16–19

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes redondear números?

Puedo usar una recta numérica o el valor posicional.

Math Journal

Describe how to round 678 to the nearest hundred.

Estimate Sums

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

Also CC.3.NBT.2

Lesson Objective

Use compatible numbers and rounding to estimate sums.

Essential Question

¿Cómo usas números compatibles y redondeo para estimar sumas?

Materials

- MathBoard
- Animated Math Models
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to estimate sums. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of rounding and estimation to develop sound mathematical practices by asking these questions.

- *¿Por qué decidiste usar números compatibles para hacer una estimación? ¿Por qué decidiste usar el redondeo?*
- *¿Cómo sabes que la respuesta es razonable?*
- *¿Cómo usas el vocabulario matemático para explicar tu proceso de estimación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these estimation concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 16–18

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas números compatibles y redondeo para estimar sumas?

Puedo usar números compatibles para hallar un número cercano al número dado, pero más fácil de sumar. Para la estimación de sumas puedo redondear los números al mismo valor posicional.

Math Journal

Explain how to estimate 368 + 231 two different ways.

Mental Math Strategies for Addition

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Lesson Objective

Count by tens and ones, use a number line, make compatible numbers, or use friendly numbers to find sums mentally.

Essential Question

¿Qué estrategias de cálculo mental puedes usar para *calcular* sumas?

Materials

- MathBoard
- *i*Tools: Number Lines
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use mental math to find sums. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of addition strategies to develop sound mathematical practices by asking these questions.

- *¿Funcionará siempre el método de los números compatibles?*
- *¿Cómo lo sabes?*
- *¿Hay alguna estrategia que puedes usar para que el problema sea más fácil?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these mental math strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 10, 11

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias de cálculo mental puedes usar para *calcular* sumas?

Se puede contar de diez en diez y de uno en uno, usar números compatibles y ajustar.

Math Journal

Which method do you prefer to use to find sums—count by tens and ones, use compatible numbers, or use friendly numbers and adjust? Explain why.

Algebra • Use Properties to Add

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Lesson Objective

Use the Commutative and Associative Properties of Addition to add more than two addends.

Essential Question

¿Cómo puedes sumar más de dos sumandos?

Materials

- MathBoard
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use properties to add more than two addends. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of addition strategies to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre la propiedad conmutativa?*
- *¿Cómo usas esa información cuando resuelves problemas con más de dos sumandos?*
- *¿Qué estrategia puedes usar para que el problema sea más fácil?*
- *¿Por qué aplicas la propiedad asociativa cuando resuelves un problema?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these strategies and properties. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 9–12

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes sumar más de dos sumandos?

Aplico la propiedad asociativa para agrupar los sumandos y sumarlos con mayor facilidad, agrupo las unidades o las decenas para sumarlas más fácilmente o aplico la propiedad conmutativa para cambiar el orden de los sumandos.

Math Journal

Give an example of an addition problem in which you would and would not group the addends differently to add.

Use the Break Apart Strategy to Add

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Also CC.3.NBT.1, CC.3.OA.8

Lesson Objective

Use the break apart strategy to add 3-digit numbers.

Essential Question

¿Cómo usas la estrategia de separar para sumar números de 3 dígitos?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- ¡Tools Base-Ten Blocks

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use the break apart strategy to add 3-digit numbers. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of place value and addition to develop sound mathematical practices by asking these questions.

- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Por qué elegiste esa estrategia?*
- *¿Qué hiciste primero?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand the break apart strategy. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 19–20

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de separar para sumar números de 3 dígitos?

Puedo separar los sumandos en centenas, decenas y unidades. Luego, puedo sumar cada valor posicional.

Math Journal

Explain how to use the break apart strategy to find 247 + 358.

Use Place Value to Add

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Also, CC.3.NBT.1, CC.3.OA.8

Lesson Objective

Use place value to add 3-digit numbers.

Essential Question

¿Cómo usas el valor posicional para sumar números de 3 dígitos?

Materials

- MathBoard
- ¡Tools Base-Ten blocks
- Math Journal
- HMH Mega Math
- Animated Math Models

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use place value to add 3-digit numbers. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of place value to develop sound mathematical practices by asking these questions.

- *¿Qué estrategia puedes usar para que el problema sea más fácil?*
- *¿Cómo sabes que esta es la mejor estrategia?*
- *¿Cómo usas el vocabulario matemático en tu respuesta?*
- *¿Qué recuerdas sobre cómo verificar tu respuesta?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these addition concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 18, 19, 20

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas el valor posicional para sumar números de 3 dígitos?

Puedo sumar los números en cada posición y reagrupar cuando pueda.

Math Journal

Explain one way to add 3-digit numbers.

Estimate Differences

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

Also CC.3.NBT.2

Lesson Objective

Use compatible numbers and rounding to estimate differences.

Essential Question

¿Cómo usas los números compatibles y el redondeo para estimar diferencias?

Materials

- MathBoard
- Animated Math Models
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to estimate differences. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of compatible numbers and estimation to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre el uso de números compatibles?*
- *¿De qué otras maneras puedes hacer una estimación?*
- *¿Por qué usaste esa estrategia en el problema?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these estimation and subtraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 16–19

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas los números compatibles y el redondeo para estimar diferencias?

Puedo hallar números cercanos a los números reales con los cuales es más fácil restar. Luego, resto para estimar la diferencia. También puedo redondear los números a la misma posición y restar los números redondeados para obtener una estimación.

Math Journal

Explain how to estimate 586 – 321 two different ways.

Mental Math Strategy for Subtraction

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Lesson Objective

Use a number line, friendly numbers, or the break apart strategy to find differences mentally.

Essential Question

¿Qué estrategias de cálculo mental puedes usar para hallar diferencias?

Materials

- MathBoard
- *i*Tools: Number Lines
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use strategies to find differences mentally. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of subtraction to develop sound mathematical practices by asking these questions.

- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Cómo lo sabes?*
- *¿Funcionará siempre ese método? ¿Cuándo es posible que no funcione?*
- *¿Qué patrones observas cuando usas números compatibles?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these subtraction strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 7, 9

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias de cálculo mental puedes usar para hallar diferencias?

Puedo usar una recta numérica para contar hacia delante de diez en diez y de uno en uno o restar decenas y unidades. Puedo usar números compatibles o usar la estrategia de separar.

Math Journal

Give one example of when you would use the friendly numbers strategy to subtract. Explain why.

Use Place Value to Subtract

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Also CC.3.NBT.1

Lesson Objective

Use place value to subtract 3-digit numbers.

Essential Question

¿Cómo usas el valor posicional para restar números de 3 dígitos?

Materials

- MathBoard
- ¡Tools: Base-Ten Blocks
- Math Journal
- HMH Mega Math
- Animated Math Models

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use place value to subtract 3-digit numbers. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of subtracting two-digit numbers to develop sound mathematical practices by asking these questions.

- *¿Qué te pregunta el problema?*
- *¿Qué estrategia puedes usar para facilitar los cálculos?*
- *¿Qué recuerdas sobre reagrupar?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these subtraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 18–21 or 22–25

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas el valor posicional para restar números de 3 dígitos?

Puedo restar el número en cada posición y reagrupar cuando lo necesite.

Math Journal

Explain how to subtract 247 from 538.

Combine Place Value to Subtract

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Also CC.3.NBT.1, CC.3.OA.8

Lesson Objective

Use the combined place values strategy to subtract 3-digit numbers.

Essential Question

¿Cómo usas la estrategia de *valores posicionales combinados* para restar números de 3 dígitos?

Materials

- MathBoard
- ¡Tools: Base-Ten Blocks
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use place value to subtract three-digit numbers. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of representing numbers in different ways to develop sound mathematical practices by asking these questions.

- *¿Qué operación debes usar para resolver el problema planteado? ¿Cómo lo sabes?*
- *¿Cuál es la mejor estrategia a usar para resolver el problema planteado? ¿Cómo lo sabes?*
- *¿Qué hiciste primero para resolver el problema planteado? ¿Por qué?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these subtraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 18–22

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de *valores posicionales combinados* para restar números de 3 dígitos?

Si no hay suficiente en esa posición, combino las decenas y las unidades o combino las centenas y las decenas y luego resto.

Math Journal

Explain how to use the combined place values strategy to find 223 – 119.

Problem Solving •
Model Addition and Subtraction

Instructional Time: 1 day

Common Core Standard

CC.3.OA.8 Solve two-step word problems using the operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Also CC.3.NBT.2

Lesson Objective

Solve addition and subtraction problems by using the strategy *draw a diagram*.

Essential Question

¿Cómo usas la estrategia de *hacer un dibujo* para resolver problemas de suma y resta de uno y dos pasos?

Materials

- MathBoard
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to draw a diagram to solve problems. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of addition and subtraction to develop sound mathematical practices by asking these questions.

- *¿Qué estrategia puede facilitar la solución del problema planteado?*
- *¿Funcionará siempre el método del modelo de barras?*
- *¿Cómo representa el modelo al problema?*
- *¿Es razonable la respuesta? ¿Cómo lo sabes?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand the draw a diagram strategy. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 6–8

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de *hacer un dibujo* para resolver problemas de suma y resta de uno y dos pasos?

Puedo dibujar un modelo de barras para ver si necesito sumar o restar.

Math Journal

Write an addition or subtraction problem and draw a diagram to solve it.

Problem Solving • Organize Data

Instructional Time: 1 day

Common Core Standard

CC.3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

Also CC.3.NBT.2

Lesson Objective

Organize data in tables and solve problems by using the strategy *make a table*.

Essential Question

¿Cómo usas la estrategia de *hacer una tabla* para organizar datos y resolver problemas?

Materials

- MathBoard
- Animated Math Models
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to organize data to solve problems. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of using tables to organize data to develop sound mathematical practices by asking these questions.

- *¿Qué estrategia usaste para resolver el problema planteado?*
- *¿Puedes pensar en otra manera de resolver el problema?*
- *¿Has resuelto algún problema parecido a este?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand this problem solving strategy. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 6, 7, 9

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de *hacer una tabla* para organizar datos y resolver problemas?

Puedo representar el número de marcas de conteo en una tabla de frecuencias. Luego, puedo usar los números en la tabla para resolver problemas.

Math Journal

How can you use the strategy *make a table* to organize data and solve problems?

Use Picture Graphs

Instructional Time: 1 day

Common Core Standard

CC.3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

Also CC.3.NBT.2

Lesson Objective

Read and interpret data in a scaled picture graph.

Essential Question

¿Cómo lees e interpretas datos en una pictografía a escala?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *¡*Tools: Graphs

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use picture graphs to solve problems. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of how to display data to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema?*
- *¿Qué vocabulario matemático puedes usar en tu respuesta?*
- *¿Qué sucede cuando cambia el valor del símbolo?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these data display concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 6, 8, 10

4 Summarize Approximately 5 min.

Essential Question

¿Cómo lees e interpretas datos en una pictografía a escala?

Uso el título para saber sobre qué trata la pictografía y qué significan los rótulos de las hileras. Uso la clave para saber cuánto representa cada símbolo. Cuento salteado o sumo para calcular el total de cada hilera.

Math Journal

Explain what you can tell just by comparing the symbols in a picture graph.

Make Picture Graphs

Instructional Time: 1 day

Common Core Standard

CC.3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

Also CC.3.NBT.2

Lesson Objective

Draw a scaled picture graph to show data in a table.

Essential Question

¿Cómo dibujas una pictografía a escala para representar datos en una tabla?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *¡*Tools: Graphs

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to make and interpret a scaled picture graph. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of picture graphs to develop sound mathematical practices by asking these questions.

- *¿Has resuelto algún problema parecido a este?*
- *¿Puedes usar el vocabulario matemático en tu respuesta?*
- *¿Funcionará siempre el método de tener un símbolo que sea igual a más de uno cuando representas datos?*
- *¿Cómo lo sabes?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these data concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 3, 5, 6 or 7–9

4 Summarize Approximately 5 min.

Essential Question

¿Cómo dibujas una pictografía a escala para representar datos en una tabla?

Escribo el título en la parte superior de la pictografía. Rotulo las hileras. Elijo una clave y los símbolos que representarán los datos. Luego, dibujo el número correcto de símbolos en cada hilera.

Math Journal

Describe why it might not be a good idea to use a key where each symbol stands for 1 in a picture graph.

Use Bar Graphs

Instructional Time: 1 day

Common Core Standard

CC.3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

Also CC.3.NBT.2

Lesson Objective

Read and interpret data in a scaled bar graph.

Essential Question

¿Cómo lees e interpretas datos en una pictografía a escala?

Materials

- MathBoard
- Animated Math Models
- Math Journal
- HMH Mega Math

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to read and interpret bar graphs. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of displaying data to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema?*
- *¿Qué crees que sucederá si cambias la clave?*
- *¿Qué operación usaste para resolver el problema planteado?*
- *¿Hay alguna otra manera de resolver el problema?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these data display concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 6–8

4 Summarize Approximately 5 min.

Essential Question

¿Cómo lees e interpretas datos en una pictografía a escala?

Primero veo el título y los rótulos para saber de qué trata la gráfica. Luego, veo la escala y la longitud de cada barra para hallar el valor.

Math Journal

Use Kate's Favorite Amusement Ride bar graph to describe what the bar for Super Slide means.

Make Bar Graphs
Instructional Time: 1 day

Common Core Standard
CC.3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

Also CC.3.NBT.2

Lesson Objective

Draw a scaled bar graph to show data on a table or picture graph.

Essential Question

¿Cómo dibujas una gráfica de barras a escala para representar datos en una tabla o en una pictografía?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Graphs

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to make and interpret bar graphs. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of data displays to develop sound mathematical practices by asking these questions.

- *¿Qué estrategias puedes usar para interpretar datos que no se ajustan exactamente a la línea en la gráfica?*
- *¿Qué vocabulario matemático puedes usar en tu respuesta?*
- *¿Por qué el modelo de datos que elegiste es el mejor para el problema planteado?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these data display concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 9, 10, 11

4 Summarize Approximately 5 min.

Essential Question

¿Cómo dibujas una gráfica de barras a escala para representar datos en una tabla o en una pictografía?

Escribo el título y los rótulos y dibujo una escala para que la mayoría de los datos queden en una línea. Dibujo las barras para mostrar los números de cada categoría.

Math Journal

Have students use the data on page 82 and explain how to draw a bar for a player named Eric who scored 20 points.

Solve Problems Using Data

Instructional Time: 1 day

Common Core Standard

CC.3.MD.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.

Also CC.3.NBT.2, CC.3.OA.8

Lesson Objective

Solve one- and two-step compare problems using data represented in scaled bar graphs.

Essential Question

¿Cómo resuelves problemas con datos representados en gráficas de barras?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Graphs

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to solve problems using data represented in graphs. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of displaying data to develop sound mathematical practices by asking these questions.

- *¿Qué te pide el problema planteado?*
- *¿Qué información necesitas?*
- *¿Hay alguna otra manera de representar y resolver el problema?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these problem-solving concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 7, 8, 9

4 Summarize Approximately 5 min.

Essential Question

¿Cómo resuelves problemas con datos representados en gráficas de barras?

Puedo leer la gráfica de barras para hallar y usar los datos que necesito. Puedo contar en la escala para comparar los datos.

Math Journal

Write a word problem that can be solved by using the November Weather bar graph.

Use and Make Line Plots

Instructional Time: 1 day

Common Core Standard

CC.3.MD.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is market off in appropriate units–whole numbers, halves, or quarters.

Also CC.3.NBT.2

Lesson Objective

Read and interpret data in a line plot and use data to make a line plot.

Essential Question

¿Cómo lees e interpretas datos en un diagrama de puntos y usas los datos para hacer un diagrama de este tipo?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Graphs

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to read, interpret, and make line plots. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of data displays to develop sound mathematical practices by asking these questions.

- *¿Qué información debes hallar?*
- *¿Qué harás primero?*
- *¿Cómo lo sabes?*
- *¿Qué vocabulario matemático nuevo puedes usar en tu respuesta?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these data display concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 5, 6

4 Summarize Approximately 5 min.

Essential Question

¿Cómo lees e interpretas datos en un diagrama de puntos y usas los datos para hacer un diagrama de este tipo?

Escribo un título y los números en orden en una recta numérica. Dibujo X sobre los números para representar los datos. Uso los datos en el diagrama de puntos para resolver los problemas.

Math Journal

Have students write and solve another problem using the data in the Daily High Temperatures line plot.

Count Equal Groups

Instructional Time: 1 day

Common Core Standard

CC.3.OA.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each.

Also CC.3.OA.3

Lesson Objective

Model and skip count objects in equal groups to find how many there are.

Essential Question

¿Cómo usas grupos iguales para calcular cuántos hay en total?

Materials

- MathBoard
- counters
- Math Journal
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Lines
- Animated Math Models

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to relate skip counting with multiplication. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling numbers to develop sound mathematical practices by asking these questions.

- *¿Qué te pide el problema planteado?*
- *¿Qué recuerdas sobre el conteo salteado?*
- *¿Qué estrategia puedes usar para que el problema sea más fácil?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these skip counting concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 6, 8, 9

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas grupos iguales para calcular cuántos hay en total?

Puedo contar salteado los grupos con dibujos o fichas.

Algebra • Relate Addition and Multiplication

Instructional Time: 1 day

Common Core Standard

Represent and solve problems involving multiplication and addition.

CC.3.OA.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each.

Also CC.3.OA.3, CC.3.OA.7, CC.3.NBT.2

Lesson Objective

Write an addition sentence and a multiplication sentence for a model.

Essential Question

¿En qué se parece la multiplicación a la suma? ¿En qué se diferencia?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Lines

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use models to relate addition and multiplication. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of making equal groups to develop sound mathematical practices by asking these questions.

- *¿Funcionará siempre el método de suma repetida? ¿Cómo lo sabes?*
- *¿Qué otro método puedes intentar con el problema planteado?*
- *¿Cómo sabes que esas respuestas son equivalentes?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these addition and multiplication concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 12, 13, 14, 15

4 Summarize Approximately 5 min.

Essential Question

¿En qué se parece la multiplicación a la suma? ¿En qué se diferencia?

Tanto la suma como la multiplicación calculan un total. Para usar la multiplicación, necesito grupos iguales. Para usar la suma, puedo tener grupos iguales o desiguales.

Math Journal

Write a word problem that involves combining three groups.

Skip Count on a Number Line

Instructional Time: 1 day

Common Core Standard

CC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Also CC.3.OA.1

Lesson Objective

Model and skip count on a number line to find how many there are.

Essential Question

¿Cómo usas una recta numérica para contar salteado y calcular cuántos hay en total?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Number Lines
- Animated Math Models

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use skip counting on the number line to multiply. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of skip counting and number lines to develop sound mathematical practices by asking these questions.

- *¿Cómo usarás la información dada para resolver el problema planteado?*
- *¿Qué hiciste primero? ¿Por qué?*
- *¿Por qué la recta numérica es un buen modelo para el problema?*
- *¿Qué estrategia puedes usar para que el problema sea más fácil de resolver?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these skip counting concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 10, 11, 12

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas una recta numérica para contar salteado y calcular cuántos hay en total?

Puedo usar el número de grupos para el número de veces que cuento salteado en la recta numérica. Puedo usar el número en cada grupo como el número por el cual cuento salteado.

Math Journal

Write a problem that can be solved by skip counting on a number line.

Problem Solving • Model Multiplication

Instructional Time: 1 day

Common Core Standard

CC.3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Also CC.3.OA.1, CC.3.OA.3

Lesson Objective

Solve one- and two-step problems by using the strategy *draw a diagram*.

Essential Question

¿Cómo usas la estrategia de *dibujar un diagrama* para resolver problemas de uno y dos pasos?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *¡*Tools: Counters

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use bar models to solve multiplication problems. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling to develop sound mathematical practices by asking these questions.

- *¿Qué te pide el problema?*
- *¿Por qué es este un buen modelo para el problema planteado?*
- *¿Qué operación usaste para representar la situación?*
- *¿Cómo representas tu trabajo con el dibujo?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these problem solving concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 7, 8

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de *dibujar un diagrama* para resolver problemas de uno y dos pasos?

Puedo dibujar un diagrama para representar la información en el problema y usar el diagrama para determinar qué operación uso para resolver el problema.

Math Journal

Describe one kind of diagram you might draw to help you solve a problem.

Model with Arrays

Instructional Time: 1 day

Common Core Standard

CC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Also CC.3.OA.1

Lesson Objective

Use arrays to model products and factors.

Essential Question

¿Cómo puedes usar matrices para representar la multiplicación y calcular factores?

Materials

- MathBoard
- square tiles
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Counters

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use arrays to multiply. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema?*
- *¿Por qué las fichas cuadradas de matemáticas son una buena representación del problema planteado?*
- *¿Hay alguna propiedad que se represente en el modelo?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 11, 12, 13

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes usar matrices para representar la multiplicación y calcular factores?

El número de hileras es el primer factor y el número en cada columna es el segundo factor.

Math Journal

Write a word problem that can be solved by drawing an array. Then draw the array and solve the problem.

Algebra • Commutative Property of Multiplication

Instructional Time: 1 day

Common Core Standard

CC.3.OA.5 Apply properties of operations as strategies to multiply and divide.

Also CC.3.OA.1, CC.3.OA.3, CC.3.OA.7

Lesson Objective

Model the Commutative Property of Multiplication and use it to find products.

Essential Question

¿Cómo aplicas la propiedad conmutativa de la multiplicación para calcular productos?

Materials

- MathBoard
- square tiles
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Number Charts

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to model and use the Commutative Property of Multiplication. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling multiplication to develop sound mathematical practices by asking these questions.

- *¿Qué operación usaste?*
- *¿Por qué la matriz es una buena representación para este problema?*
- *¿Cómo apoya la representación tu trabajo?*
- *¿Cómo puedes aplicar la propiedad conmutativa de la multiplicación en el problema planteado?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand the Commutative Property of Multiplication. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 8, 11, 13 or 14–17

4 Summarize Approximately 5 min.

Essential Question

¿Cómo aplicas la propiedad conmutativa de la multiplicación para calcular productos?

Cuando conozco una de las operaciones, puedo aplicar la propiedad conmutativa para calcular la respuesta a una operación relacionada. Por ejemplo, si yo sé que $7 \times 2 = 14$, entonces sé que $2 \times 7 = 14$.

Algebra • Multiply with 1 and 0
Instructional Time: 1 day

Common Core Standard
CC.3.OA.5 Apply properties of operations as strategies to multiply and divide.

Also CC.3.OA.1, CC.3.OA.3, CC.3.OA.7

Lesson Objective
Model multiplication with the factors 1 and 0.

Essential Question
¿Qué sucede cuando multiplicas un número por 0 o por 1?

Materials
- MathBoard
- Math Journal
- HMH Mega Math
- ¡Tools: Number Lines
- Animated Math Models

1 Engage Approximately 5 min.
This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to understand the identity and zero properties of multiplication. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre el conteo salteado?*
- *¿Qué conclusiones puedes sacar a partir del modelo?*
- *¿Qué propiedades puedes aplicar para resolver el problema planteado? Explica por qué.*

3 Practice

Share and Show Approximately 10 min.
Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.
Students can begin independent practice once they understand these multiplication concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 30–37 or 38–40

4 Summarize Approximately 5 min.

Essential Question
¿Qué sucede cuando multiplicas un número por 0 o por 1?

Cuando multiplico un número por 0, el producto es 0. Cuando multiplico un número por 1, el producto es ese número.

Multiply with 2 and 4

Instructional Time: 1 day

Common Core Standard

CC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Also CC.3.OA.1, CC.3.OA.7

Lesson Objective

Draw a picture, count by 2s, or use doubles to multiply with the factors 2 and 4.

Essential Question

¿Cómo puedes multiplicar por 2 y por 4?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- *i*Tools: Base-Ten Blocks
- *i*Tools: Counters
- *i*Tools: Number Lines

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to multiply with the factors 2 and 4. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication to develop sound mathematical practices by asking these questions.

- *¿Qué te pide el problema planteado?*
- *¿Hay alguna otra manera de resolver el problema?*
- *¿Qué vocabulario matemático puedes usar?*
- *¿Son razonables tus respuestas?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 23, 24, 25 or 26, 27

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes multiplicar por 2 y por 4?

Para multiplicar por 2, puedo hacer un dibujo, sumar dobles o contar de 2 en 2. Para multiplicar por 4, puedo hacer un dibujo donde multiplique el otro factor por 2 y duplico el producto.

Math Journal

Explain how you can use doubles when multiplying with 4 to find 4×8.

Multiply with 5 and 10

Instructional Time: 1 day

Common Core Standard

CC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Also CC.3.OA.1, CC.3.OA.7

Lesson Objective

Use skip counting, a number line, or a bar model to multiply with the factors 5 and 10.

Essential Question

¿Cómo puedes multiplicar por 5 y por 10?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Lines

1 Engage Approximately 5 min.

This activity reviews prerequisite skills. You can include or skip this activity. Use evidence of students' understanding to make decisions like this throughout the lesson.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to multiply with 5 and 10. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication to develop sound mathematical practices by asking these questions.

- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Hay alguna otra manera de resolver el problema?*
- *¿Qué vocabulario matemático puedes usar cuando resuelves el problema?*
- *¿Son razonables tus respuestas?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 34, 35, 37 or 38–40

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes multiplicar por 5 y por 10?

Puedo contar salteado, usar un modelo de barras, hacer un dibujo o usar una recta numérica.

Multiply with 3 and 6

Instructional Time: 1 day

Common Core Standard

CC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Also CC.3.OA.1, CC.3.OA.7, CC.3.OA.9

Lesson Objective

Draw a picture, use 5s facts and addition, doubles, or a multiplication table to multiply with the factors 3 and 6.

Essential Question

¿De qué maneras puedes multiplicar por 3 y por 6?

Materials

- MathBoard
- Math Journal
- *i*Tools: Counters
- *i*Tools: Number Charts
- Animated Math Models

1 Engage Approximately 5 min.

This activity reviews prerequisite skills. You can include or skip this activity. Use evidence of students' understanding to make decisions like this throughout the lesson.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to multiply with 5 and 10. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication to develop sound mathematical practices by asking these questions.

- *¿Has resuelto algún problema semejante a este? Describe el problema.*
- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Hay alguna otra estrategia que puedas usar para resolver el problema planteado?*
- *¿Son razonables tus respuestas?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 34, 35, 37 or 38–40

4 Summarize Approximately 5 min.

Essential Question

¿De qué maneras puedes multiplicar por 3 y por 6?

Puedo hacer un dibujo, usar las operaciones con 5 y la suma, una tabla de multiplicación o usar operaciones con dobles.

Math Journal

Explain how multiplying with 6 is like multiplying with 3.

Algebra • Distributive Property

Instructional Time: 1 day

Note: The instructional time for this lesson can be 2 days. On Day 1, complete the Activity and Math Talk. Have students use counters to model 6 x 8. Relate the strategy used on p. 142 to the Distributive Property. On Day 2, in Try This! break apart 6 in other ways, then break apart 9. Complete Share and Show. Assign On Your Own for homework.

Common Core Standard

CC.3.OA.5 Apply properties of operations as strategies to multiply and divide.

Also CC.3.OA.1, CC.3.OA.3, CC.3.OA.4, CC.3.OA.7

Lesson Objective

Use the Distributive Property to find products by breaking apart arrays.

Essential Question

¿Cómo puedes aplicar la propiedad distributiva para calcular productos?

Materials

- MathBoard
- square tiles
- Math Journal
- HMH Mega Math

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to draw and break apart arrays to model the Distributive Property. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema?*
- *¿Qué hiciste primero y por qué?*
- *¿Qué propiedades aplicaste para resolver el problema planteado?*
- *¿Qué sucede si separas la matriz en un tamaño más pequeño?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand the Distributive Property. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 6, 7, 9

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes aplicar la propiedad distributiva para calcular productos?

Puedo separar uno de los factores y multiplicar cada sumando por el otro factor. Luego, puedo sumar los productos para calcular la respuesta.

Multiply with 7

Instructional Time: 1 day

Common Core Standard

CC.3.OA.7 Fluently multiply and divide with 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Also CC.3.OA.1, CC.3.OA.3, CC.3.OA.4, CC.3.OA.5

Lesson Objective

Use the Commutative or Distributive Property or known facts to multiply with the factor 7.

Essential Question

¿Qué estrategias puedes usar para multiplicar por 7?

Materials

- MathBoard
- Math Journal
- *i*Tools: Base-Ten blocks
- *i*Tools: Counters

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies or properties to multiply with the factor 7. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication properties to develop sound mathematical practices by asking these questions.

- *¿Qué operación usaste para representar la situación?*
- *¿Hay alguna otra operación que puedas usar?*
- *¿Cómo calculas la respuesta con la ayuda de un problema más simple?*
- *¿Qué propiedades usaste para resolver el problema planteado?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these different multiplication strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 23, 24, 26

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para multiplicar por 7?

Aplico la propiedad distributiva para separar la multiplicación en operaciones más pequeñas, aplico la propiedad conmutativa o uso dobles cuando por lo menos uno de los factores es un número par.

Math Journal

Explain how you would use the Commutative Property of Multiplication to answer 7×3.

Algebra • Associative Property of Multiplication

Instructional Time: 1 day

Common Core Standard

CC.3.OA.5 Apply properties of operations as strategies to multiply and divide.

Also CC.3.OA.1, CC.3.OA.3, CC.3.OA.4, CC.3.OA.7

Lesson Objective

Use the Associative Property of Multiplication to multiply with three factors.

Essential Question

¿Cómo puedes aplicar la propiedad asociativa de la multiplicación para calcular productos?

Materials

- MathBoard
- Math Journal
- Animated Math Models

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use the Associative property of Multiplication to multiply. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication properties to develop sound mathematical practices by asking these questions.

- *¿Qué propiedad aplicaste para resolver el problema planteado?*
- *¿Qué recuerdas sobre la propiedad conmutativa?*
- *¿Hay alguna otra manera de resolver el problema?*
- *¿Qué crees que sucederá si les cambias de lugar a los factores?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 29–37 or 38–40

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes aplicar la propiedad asociativa de la multiplicación para calcular productos?

Puedo cambiar la manera como están agrupados los factores y aun así obtener la misma respuesta.

Math Journal

Why would you use the Associative Property of Multiplication to solve $(10 \times 4) \times 2$? How would you regroup the factors?

Algebra • Patterns on the Multiplication Table

Instructional Time: 1 day

Common Core Standard

CC.3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

Also CC.3.OA.5

Lesson Objective

Identify and explain patterns on the multiplication table.

Essential Question

¿Cómo puedes aplicar las propiedades para explicar patrones en la tabla de multiplicación?

Materials

- MathBoard
- yellow and blue crayons
- Math Journal
- *i*Tools: Numbers Chart

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to explain patterns on the multiplication table. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication and patterns to develop sound mathematical practices by asking these questions.

- *¿Qué hiciste primero y por qué?*
- *¿Qué propiedades aplicaste para resolver el problema planteado?*
- *¿Qué patrones puedes hallar?*
- *¿Cómo descubriste los patrones que ves?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand multiplication patterns. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 14, 15, 16

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes aplicar las propiedades para explicar patrones en la tabla de multiplicación?

Puedo aplicar la propiedad conmutativa para hallar patrones que muestren los mismos factores pero en otro orden. También puedo aplicar las propiedades asociativa y distributiva para hallar patrones de productos pares o impares.

Multiply with 8

Instructional Time: 1 day

Common Core Standard

CC.3.OA.7 Fluently multiply and divide with 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Also CC.3.OA.1, CC.3.OA.3, CC.3.OA.4, CC.3.OA.5, CC.3.OA.9

Lesson Objective

Use doubles, a number line, or Associative Property of Multiplication to multiply with the factor 8.

Essential Question

¿Qué estrategias puedes usar para multiplicar por 8?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Lines

1 Engage Approximately 5 min.

This activity reviews prerequisite skills. You can include or skip this activity. Use evidence of students' understanding to make decisions like this throughout the lesson.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies or properties to multiply with 8. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication to develop sound mathematical practices by asking these questions.

- *¿Qué operación usaste para representar la situación?*
- *¿Qué estrategia usaste para resolver el problema planteado?*
- *¿Puedes usar otra estrategia?*
- *¿Qué recuerdas sobre el uso de operaciones con dobles para resolver problemas?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 20–27, 31

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para multiplicar por 8?

Puedo aplicar la propiedad distributiva para separar 8 en dos operaciones que conozco u operaciones más fáciles. Podría aplicar la propiedad asociativa de la multiplicación para trabajar con una operación que conozco, con matrices, dobles, dibujos rápidos o conteo salteado en una recta numérica para multiplicar por 8.

Math Journal

What two facts can you double to find 8×4? Explain.

Multiply with 9
Instructional Time: 1 day

Note: The instructional time for this lesson can be 2 days. On Day 1, have students draw arrays to model Unlock the Problem. Have them use their models to justify using the Distributive Property with Subtraction. On Day 2, Review Day 1. Then have students complete Another Way, Try This!, Share and Show. Do the exercises on page 169 as a class.

Common Core Standard

CC.3.OA.7 Fluently multiply and divide with 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Also CC.3.OA.1, CC.3.OA.3, CC.3.OA.4, CC.3.OA.5, CC.3.OA.9

Lesson Objective

Use the Distributive Property with addition or subtraction or patterns to multiply with the factor 9.

Essential Question

¿Qué estrategias puedes usar para multiplicar por 9?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Base-Ten Blocks

1 Engage Approximately 5 min.

This activity reviews prerequisite skills. You can include or skip this activity. Use evidence of students' understanding to make decisions like this throughout the lesson.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use the Distributive property or patterns to multiply with 9. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication properties and strategies to develop sound mathematical practices by asking these questions.

- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Qué propiedades puedes aplicar?*
- *¿Ves algún patrón en el problema? ¿Puedes usarlos para resolver el problema planteado?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 19–24 or 25–27

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para multiplicar por 9?

Uso patrones de 9. La suma de los dígitos del producto de 9 es siempre 9. El dígito en las decenas siempre es uno menos que el otro factor.

Problem Solving • Multiplication

Instructional Time: 1 day

Note: The instructional time for this lesson can be 2 days. On Day 1, complete the first three pages of the lesson and assign homework. On Day 2, Review homework. Then complete the Extend the Math activity as a class to provide additional problem-solving practice.

Common Core Standard

CC.3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Also CC.3.OA.3, CC.3.OA.7, CC.3.OA.9

Lesson Objective

Solve multiplication problems by using the strategy *make a table*.

Essential Question

¿Cómo puedes usar la estrategia de *hacer una tabla* para resolver problemas de multiplicación?

Materials

- MathBoard
- Math Journal
- HMH Mega Math

1 Engage Approximately 5 min.

This activity reviews prerequisite skills. You can include or skip this activity. Use evidence of students' understanding to make decisions like this throughout the lesson.

2 Teach and Talk

Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to make a table to solve multiplication problems. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication strategies to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema?*
- *¿Qué información necesitas?*
- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Observas algún patrón? ¿Cómo pueden usarse esos patrones?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand the make a table strategy. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 5, 7

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes usar la estrategia de *hacer una tabla* para resolver problemas de multiplicación?

Organiza la información, facilita ver el patrón y me asegura que hallé todas las soluciones posibles.

Math Journal

Write a problem you can use the *make the table* strategy to solve. Then solve the problem.

Algebra • Describe Patterns

Instructional Time: 1 day

Common Core Standard

CC.3.OA.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

Also CC.3.OA.3, CC.3.OA.7

Lesson Objective

Identify and describe a number pattern shown in a function table.

Essential Question

¿De qué maneras puedes describir un patrón en una tabla?

Materials

- MathBoard
- Animated Math Models
- Number Wheels
- HMH Mega Math
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to describe a pattern shown in a function table. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of patterns to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema?*
- *¿Qué propiedad puedes aplicar para resolver el problema planteado? Explica por qué.*
- *¿Cómo descubriste el patrón que ves?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these number pattern concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 7, 9, 10 or 11–15

4 Summarize Approximately 5 min.

Essential Question

¿De qué maneras puedes describir un patrón en una tabla?

Observo los números en la tabla y veo cómo se relacionan entre sí. Pruebo el patrón con cada par de números en la tabla.

Algebra • Find Unknown Factors

Instructional Time: 1 day

Common Core Standard

CC.3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

Also CC.3.OA.1, CC.3.OA.3, CC.3.OA.7

Lesson Objective

Use an array or a multiplication table to find an unknown factor.

Essential Question

¿Cómo puedes usar una matriz o una tabla de multiplicación para calcular un factor desconocido?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Number Charts

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to find an unknown factor. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication tables to develop sound mathematical practices by asking these questions.

- *¿Qué sucede cuando hay una incógnita en una ecuación dada?*
- *¿Qué haces primero y por qué?*
- *¿Hay alguna otra estrategia que puedes usar?*
- *¿Qué vocabulario matemático puedes usar para resolver el problema?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 30–35 or 36–40

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes usar una matriz o una tabla de multiplicación para calcular un factor desconocido?

Matriz: Dibujo el número total de fichas cuadradas en hileras iguales. Uso el factor dado como el número de hileras y el número en cada hilera. Tabla de multiplicación: Sigo el factor dado hacia abajo o hacia la derecha del producto, luego subo o voy a la izquierda para hallar el factor desconocido.

Math Journal

Explain why it does not matter what letter or symbol is used to find an unknown factor.

Problem Solving • Use the Distributive Property

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80, 5×60) using strategies based on place value and properties of operations.

Also CC.3.OA.3, CC.3.OA.5, CC.3.OA.7

Lesson Objective

Solve multiplication problems by using the strategy *draw a diagram*.

Essential Question

¿Cómo usas la estrategia de *dibujar un diagrama* para multiplicar por múltiplos de 10?

Materials

- MathBoard
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use the Distributive Property to solve problems. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of the properties of multiplication to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema?*
- *¿Cómo usarás esa información?*
- *¿Qué modelo puedes usar para resolver el problema planteado?*
- *¿Qué propiedades pueden ayudar a que el problema sea más fácil de resolver? Explica por qué.*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these problem solving concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 5, 7

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de *dibujar un diagrama* para multiplicar por múltiplos de 10?

Puedo dibujar y sombrear un rectángulo en papel cuadriculado para representar el problema. Luego, puedo separar un factor para hacer rectángulos más pequeños para las operaciones que conozco.

Math Journal

Write a description of how a diagram can help you solve 2×40.

Multiplication Strategies with Multiples of 10

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80, 5×60) using strategies based on place value and properties of operations.

Also CC.3.OA.3, CC.3.OA.5, CC.3.OA.7

Lesson Objective

Use base-ten blocks, a number line, or place value to multiply with multiples of 10.

Essential Question

¿Qué estrategias puedes usar para multiplicar por múltiplos de 10?

Materials

- MathBoard
- Math Journal
- Real World Video, Ch. 5
- *i*Tools: Base-Ten Blocks
- *i*Tools: Number Lines

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to multiply by multiples of 10. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication strategies to develop sound mathematical practices by asking these questions.

- *¿Qué modelo puedes usar para resolver este problema?*
- *¿Por qué decidiste usar la estrategia que elegiste?*
- *¿Hay alguna otra estrategia que pueda funcionar?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 9, 10, 11

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para multiplicar por múltiplos de 10?

Uso bloques de base diez para mostrar los grupos de bloques de decenas. Uso una recta numérica para mostrar saltos de grupos iguales o uso el valor posicional.

Math Journal

Which strategies do you prefer to use to multiply with numbers of 10–base-ten blocks, a number line, or a place value? Explain why.

Multiply Multiples of 10 by 1-Digit Numbers

Instructional Time: 1 day

Common Core Standard

CC.3.NBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80, 5×60) using strategies based on place value and properties of operations.

Also CC.3.OA.3, CC.3.OA.7

Lesson Objective

Model and record multiplication with multiples of 10.

Essential Question

¿Cómo puedes representar y anotar la multiplicación de múltiplos de 10 por números naturales de 1 dígito?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Base-Ten Blocks

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to multiply by multiples of 10. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication to develop sound mathematical practices by asking these questions.

- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Cómo apoya el dibujo tu trabajo?*
- *¿Qué recuerdas sobre reagrupar?*
- *¿Qué situación puede representarse con esta ecuación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 22–25 or 26–28

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes representar y anotar la multiplicación de múltiplos de 10 por números naturales de 1 dígito?

Uso bloques de base diez para mostrar grupos de bloques de decenas o uso el valor posicional para multiplicar primero las unidades, luego multiplicar las decenas y anotar la respuesta.

Math Journal

Explain how to find 4×80. Show your work.

Problem Solving • Model Division

Instructional Time: 1 day

Common Core Standard

CC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Also CC.3.OA.2

Lesson Objective

Solve division problems by using the strategy *act it out*.

Essential Question

¿Cómo puedes usar la estrategia de *hacer una dramatización* para resolver problemas con grupos iguales?

Materials

- MathBoard
- counters
- Math Journal
- HMH Mega Math
- *i*Tools: Counters

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use equal groups to solve division problems. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling problems to develop sound mathematical practices by asking these questions.

- *¿Qué hiciste primero? ¿Por qué?*
- *¿Qué operación usaste para representar el problema planteado?*
- *¿Por qué esa operación representa el problema?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand strategies for dividing. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 7, 8

4 Summarize Approximately 5 min.

Essential Question

¿Cómo puedes usar la estrategia de *hacer una dramatización* para resolver problemas con grupos iguales?

Uso objetos para representar qué sucede en el problema.

Math Journal

Write a word problem about equal groups and act it out to solve it.

Size of Equal Groups

Instructional Time: 1 day

Common Core Standard

CC.3.OA.2 Interpret whole-number quotients of whole numbers, e.g., interpret 58 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

Also CC.3.OA.3

Lesson Objective

Use models to explore the meaning of partitive (sharing) division.

Essential Question

¿Cómo representas un problema de división para calcular cuántos hay en cada grupo?

Materials

- MathBoard
- counters
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Base-Ten Blocks

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem ● Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to divide to find how many in each group. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling and division to develop sound mathematical practices by asking these questions.

- *¿Qué hiciste primero? ¿Por qué?*
- *¿Por qué las fichas son una buena representación para este problema?*
- *¿Qué conclusiones puedes sacar a partir de tu modelo?*
- *¿Cómo cambiaría tu modelo si clasificaras en 4 cajas?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 10, 11, 12

4 Summarize Approximately 5 min.

Essential Question

¿Cómo representas un problema de división para calcular cuántos hay en cada grupo?

Puedo colocar las fichas, una a la vez, en cada grupo. Luego, puedo contar el número de fichas en cada grupo.

Math Journal

Describe how to divide cookies equally between 2 of your friends.

Number of Equal Groups

Instructional Time: 1 day

Common Core Standard

CC.3.OA.2 Interpret whole-number quotients of whole numbers, e.g., interpret 58 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

Also CC.3.OA.3

Lesson Objective

Use models to explore the meaning of quotative (measurement) division.

Essential Question

¿Cómo representas un problema de división para calcular cuántos grupos iguales hay?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Counters

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to divide to find the number of equal groups. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling and division to develop sound mathematical practices by asking these questions.

- *¿Has resuelto algún problema parecido al problema dado? Describe las semejanzas.*
- *¿Qué modelo puedes usar como ayuda para resolver el problema planteado?*
- *¿Por qué las fichas son un buen modelo para este problema?*
- *¿Qué conclusiones puedes sacar a partir de tu modelo?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 8, 10

4 Summarize Approximately 5 min.

Essential Question

¿Cómo representas un problema de división para calcular cuántos grupos iguales hay?

Dibujo el número total de fichas. Encierro en círculos las fichas para formar grupos iguales hasta encerrar todas las fichas. El número de círculos es el número de grupos iguales.

Math Journal

Write and solve a math problem in which you need to find how many equal groups.

Model with Bar Models

Instructional Time: 1 day

Common Core Standard

CC.3.OA.2 Interpret whole-number quotients of whole numbers, e.g., interpret 58 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

Also CC.3.OA.3

Lesson Objective

Model division by using equal groups and bar models.

Essential Question

¿Cómo usas modelos de barras para resolver problemas de división?

Materials

- MathBoard
- counters
- Math Journal
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Base-Ten Blocks
- Animated Math Models

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use equal groups and bar models to divide. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling and division to develop sound mathematical practices by asking these questions.

- *¿Qué operación usaste para representar la situación?*
- *¿Por qué un modelo de barras es un buen modelo para el problema planteado?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Cómo cambiaría tu modelo si solo hay 2 perros en la clase?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 12, 13, 14

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas modelos de barras para resolver problemas de división?

Puedo dibujar un todo separado en grupos iguales. Luego, puedo calcular el número en cada grupo.

Math Journal

Describe how to find the number of $4 train tickets you can buy with $32.

Algebra • Relate Subtraction and Division

Instructional Time: 1 day

Common Core Standard

CC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Also CC.3.OA.2, CC.3.OA.7

Lesson Objective

Use repeated subtraction and a number line to relate subtraction to division.

Essential Question

¿Cómo se relaciona la división con la resta?

Materials

- MathBoard
- Math Journal
- Real World Video, Ch. 6
- Animated Math Models
- HMH Mega Math
- *i*Tools: Base-Ten Blocks

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to relate division to subtraction. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of subtraction and division to develop sound mathematical practices by asking these questions.

- *¿Qué operación usaste para representar la situación?*
- *¿Por qué elegiste esa operación?*
- *¿Cómo hallas la respuesta con la ayuda de una recta numérica?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 8, 10, 12 or 13–15

4 Summarize Approximately 5 min.

Essential Question

¿Cómo se relaciona la división con la resta?

Se puede pensar en la división como una resta repetida del divisor.

Math Journal

Explain how you can use subtraction to solve a division problem.

Investigate • Model with Arrays

Instructional Time: 1 day

Common Core Standard

CC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Also CC.3.OA.2

Lesson Objective

Model division by using arrays.

Essential Question

¿Cómo resuelves problemas de división con matrices?

Materials

- MathBoard
- square tiles
- Math Journal
- *i*Tools: Counters

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Investigate • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use arrays to divide. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling and division to develop sound mathematical practices by asking these questions.

- *¿Por qué las matrices son un buen modelo para el problema planteado?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Cómo cambiaría tu modelo si solo haces 3 hileras?*
- *¿Qué ecuación puede representar la situación dada?*

3 Practice

Share and Show Approximately 20 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

Students can begin independent practice once they understand these division concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 8, 10, 11

4 Summarize Approximately 5 min.

Essential Question

¿Cómo resuelves problemas de división con matrices?

Puedo calcular cuántos grupos iguales hay colocando ese número de fichas cuadradas en cada hilera de una matriz hasta usar todas las fichas. La respuesta será el número de hileras. Puedo dividir las fichas cuadradas en cierto número de hileras, colocando 1 ficha cuadrada a la vez en cada hilera hasta usar todas las fichas. La respuesta será el número de fichas en cada hilera.

Math Journal

Draw an array to show how to arrange 20 chairs into 5 equal rows. Explain what each part of the array represents.

Algebra • Relate Multiplication and Division

Instructional Time: 1 day

Note: The instructional time for this lesson can also be 2 days. Use the extra time for students to model Unlock the Problem with counters and model On Your Own exercises in class.

Common Core Standard

CC.3.OA.6 Understand division as an unknown-factor problem.

Also CC.3.OA.2, CC.3.OA.3, CC.3.OA.4, CC.3.OA.7

Lesson Objective

Use bar models and arrays to relate multiplication and division as inverse operations.

Essential Question

¿Cómo usas la multiplicación para dividir?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- *i*Tools: Counters
- *i*Tools: Number Charts

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk

Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to relate multiplication and division as inverse operations. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication and division to develop sound mathematical practices by asking these questions.

- *¿Qué operación usaste para representar la situación?*
- *¿Por qué el modelo de barras es un buen modelo para el problema planteado?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Cómo sabes que tu repuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication and division concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 16–21 or 22–24

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la multiplicación para dividir?

Respuesta posible: Dividir es como calcular el factor desconocido en un problema de multiplicación. Se usa el producto como el dividendo y uno de los factores como el divisor. El otro factor es el cociente.

Algebra • Write Related Facts

Instructional Time: 1 day

Common Core Standard

CC.3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g. knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Also CC.3.OA.2, CC.3.OA.3

Lesson Objective

Write related multiplication and division facts.

Essential Question

¿Cómo escribes un grupo de operaciones relacionadas de multiplicación y división?

Materials

- MathBoard
- square tiles
- Math Journal
- Animated Math Models
- *i*Tools: Counters

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to write related multiplication and division equations. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of multiplication and division to develop sound mathematical practices by asking these questions.

- *¿Qué modelo puedes usar para resolver el problema planteado?*
- *¿Por qué una matriz es un buen modelo?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Cómo cambiaría tu modelo si usas 12 fichas cuadradas?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these multiplication and division concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 18, 19, 20

4 Summarize Approximately 5 min.

Essential Question

¿Cómo escribes un grupo de operaciones relacionadas de multiplicación y división?

El producto en una operación de multiplicación es el dividendo en una operación de división. Los factores en una operación de multiplicación son el divisor y el cociente en las operaciones de división.

Math Journal

Write a division fact. Write the rest of the related facts.

Algebra • Division Rules for 1 and 0

Instructional Time: 1 day

Common Core Standard

CC.3.OA.5 Apply properties of operations as strategies to multiply and divide.

Also CC.3.OA.2, CC.3.OA.3, CC.3.OA.7

Lesson Objective

Divide using the rules for 1 and 0.

Essential Question

¿Cuáles son las reglas para dividir entre 1 y entre 0?

Materials

- MathBoard
- square tiles
- Math Journal
- Animated Math Models
- *i*Tools: Counters

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to divide using the rules for 1 and 0. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of division to develop sound mathematical practices by asking these questions.

- *¿Has resuelto algún problema parecido al problema dado? Describe las semejanzas.*
- *¿Qué propiedades usaste para obtener tu respuesta?*
- *¿Cómo sabes que la respuesta es razonable?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 26, 27, 28

4 Summarize Approximately 5 min.

Essential Question

¿Cuáles son las reglas para dividir entre 1 y entre 0?

Cualquier número dividido entre 1 es igual a ese número. Cualquier número (excepto el 0) dividido entre sí mismo es igual a 1. El cero dividido entre cualquier número (excepto el 0) es igual a 0. No se puede dividir entre 0.

Math Journal

Compare and contrast the multiplication rules for 1 and 0 with the division rules for 1 and 0.

Divide by 2

Instructional Time: 1 day

Common Core Standard

CC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Also CC.3.OA.2, CC.3.OA.7

Lesson Objective

Use models to represent division by 2.

Essential Question

¿Qué significa dividir entre 2?

Materials

- MathBoard Models
- counters
- Math Journal
- Animated Math
- HMH Mega Math
- *i*Tools: Counters

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use models to divide by 2. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling and division to develop sound mathematical practices by asking these questions.

- *¿Qué operación elegiste para representar la situación?*
- *¿Por qué las fichas son un buen modelo para este problema?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Cómo cambiaría tu modelo si usas 20 fichas?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these modeling and division concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 17– 20 or 21–23

4 Summarize Approximately 5 min.

Essential Question

¿Qué significa dividir entre 2?

Respuesta posible: Dividir un número en 2 grupos iguales o en grupos de 2.

Math Journal

Explain how to divide an amount by 2. Use the terms *dividend, divisor,* and *quotient*.

Divide by 10

Instructional Time: 1 day

Common Core Standard

CC.3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g. knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Also CC.3.OA.2, CC.3.OA.3, CC.3.OA.4, CC.3.OA.6

Lesson Objective

Use repeated subtraction, a number line, or a multiplication table to divide by 10.

Essential Question

¿Qué estrategias puedes usar para dividir entre 10?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Lines

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to divide by 10. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of division strategies to develop sound mathematical practices by asking these questions.

- *¿Has resuelto un problema parecido al problema dado? Describe las semejanzas.*
- *¿Cómo divides con la ayuda de una recta numérica?*
- *¿Cómo divides con la ayuda de una tabla de multiplicación?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division strategies . Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 24–29 or 30–32

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para dividir entre 10?

Respuesta posible: Usar la resta repetida, saltos en una recta numérica o una tabla de multiplicación.

Math Journal

Write and solve a word problem that involves dividing by 10.

Divide by 5

Instructional Time: 1 day

Common Core Standard

CC.3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Also CC.3.OA.2, CC.3.OA.7

Lesson Objective

Count up by 5s, count back on a number line, or use 10s facts and doubles to divide by 5.

Essential Question

¿Qué significa dividir entre 5?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Lines

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem ● Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to divide by 5. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of division strategies to develop sound mathematical practices by asking these questions.

- *¿Has resuelto un problema parecido al problema dado? Describe las semejanzas.*
- *¿Qué operación usaste para representar la situación?*
- *¿Por qué elegiste esa operación?*
- *¿Qué estrategias puedes usar para resolver el problema planteado?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 23, 24, 26

4 Summarize Approximately 5 min.

Essential Question

¿Qué significa dividir entre 5?

Dividir entre 5 significa formar grupos iguales de 5.

Math Journal

Write about which method you prefer to use to divide by 5—counting up, counting back on a number line, or dividing by 10, and then doubling the quotient. Explain why.

Divide by 3

Instructional Time: 1 day

Common Core Standard

CC.3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g. knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Also CC.3.OA.2, CC.3.OA.3, CC.3.OA.4, CC.3.OA.6

Lesson Objective

Use equal groups, a number line, or a related multiplication fact to divide by 3.

Essential Question

¿Qué estrategias puedes usar para dividir entre 3?

Materials

- MathBoard
- Math Journal
- Real World Video, Ch. 7
- Animated Math Models
- *i*Tools: Counters
- *i*Tools: Number Lines

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to divide by 3. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of division strategies to develop sound mathematical practices by asking these questions.

- *¿Por qué las fichas son un buen modelo para el problema planteado?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Funcionará siempre ese método?*
- *¿Qué otro método puedes usar?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 30–35 or 36–38

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para dividir entre 3?

Respuesta posible: Formar grupos iguales de 3 fichas, contar hacia atrás de 3 en 3 en una recta numérica, usar una operación relacionada de multiplicación.

Math Journal

Explain how to divide an amount by 3.

Divide by 4

Instructional Time: 1 day

Common Core Standard

CC.3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g. knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Also CC.3.OA.2, CC.3.OA.3, CC.3.OA.4, CC.3.OA.5, CC.3.OA.6

Lesson Objective

Use an array, equal groups, factors, or a related multiplication fact to divide by 4.

Essential Question

¿Qué estrategias puedes usar para dividir entre 4?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Charts

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to divide by 4. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of division strategies to develop sound mathematical practices by asking these questions.

- *¿Por qué es una matriz un buen modelo para la división?*
- *¿Por qué las fichas son un buen modelo para la división?*
- *¿Qué conclusiones puedes sacar de los modelos?*
- *¿Qué otro método puedes usar para resolver el problema planteado?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 32–39 or 40–42

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para dividir entre 4?

Respuesta posible: Hacer una matriz, formar grupos iguales, usar factores de 4: 2 y 2 y usar una operación relacionada de multiplicación.

Math Journal

Write and solve a word problem that involves dividing by 4.

Divide by 6

Instructional Time: 1 day

Common Core Standard

CC.3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g. knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Also CC.3.OA.2, CC.3.OA.3, CC.3.OA.4, CC.3.OA.5, CC.3.OA.6

Lesson Objective

Use equal groups, a related multiplication fact, or factors to divide by 6.

Essential Question

¿Qué estrategias puedes usar para dividir entre 6?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Charts

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to divide by 6. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of division strategies to develop sound mathematical practices by asking these questions.

- *¿Has resuelto un problema parecido al problema dado? Describe las semejanzas.*
- *¿Por qué las fichas son un buen modelo para el problema?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Qué otro método puedes usar para resolver el problema planteado?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 28–35 or 36–38

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para dividir entre 6?

Respuesta posible: Formar grupos iguales, usar una operación relacionada de multiplicación o usar factores.

Math Journal

Which strategy would you use to divide 36 ÷ 6? Explain why you chose that strategy.

Divide by 7

Instructional Time: 1 day

Common Core Standard

CC.3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g. knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Also CC.3.OA.2, CC.3.OA.3, CC.3.OA.4, CC.3.OA.6

Lesson Objective

Use an array, a related multiplication fact, or equal groups to divide by 7.

Essential Question

¿Qué estrategias puedes usar para dividir entre 7?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Charts

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to divide by 7. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of division strategies to develop sound mathematical practices by asking these questions.

- *¿Has resuelto un problema parecido al problema dado? Describe las semejanzas.*
- *¿Por qué una matriz es un buen modelo para la división?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Qué otro modelo puedes usar para el problema planteado?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 29, 32, 33

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para dividir entre 7?

Respuesta posible: Hacer una matriz, usar una operación relacionada de multiplicación, formar grupos iguales.

Math Journal

Describe how to find the number of weeks equal to 56 days.

Divide by 8

Instructional Time: 1 day

Common Core Standard

CC.3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

Also CC.3.OA.2, CC.3.OA.3, CC.3.OA.6, CC.3.OA.7

Lesson Objective

Use repeated subtraction, a related multiplication fact, or a multiplication table to divide by 8.

Essential Question

¿Qué estrategias puedes usar para dividir entre 8?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Charts

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to divide by 8. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of division strategies to develop sound mathematical practices by asking these questions.

- *¿Cómo resuelves el problema planteado con la ayuda de una tabla de multiplicación?*
- *¿Qué otra estrategia puedes usar para resolver el problema planteado?*
- *¿Has resuelto un problema semejante? Describe las semejanzas.*
- *¿Funcionará siempre ese método?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 28–31 or 32–34

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para dividir entre 8?

Respuesta posible: Resta repetida, una operación relacionada de multiplicación o la tabla de multiplicación.

Math Journal

Describe which strategy would you use to divide 48 by 8.

Divide by 9

Instructional Time: 1 day

Common Core Standard

CC.3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g. knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Also CC.3.OA.2, CC.3.OA.3, CC.3.OA.4, CC.3.OA.5, CC.3.OA.6

Lesson Objective

Use equal groups, factors, or related multiplication fact to divide by 9.

Essential Question

¿Qué estrategias puedes usar para dividir entre 9?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Counters
- *i*Tools: Number Charts

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use different strategies to divide by 9. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of division strategies to develop sound mathematical practices by asking these questions.

- *¿Has resuelto un problema semejante a este? Describe las semejanzas.*
- *¿Por qué las fichas son un buen modelo para este problema?*
- *¿Qué otro método puedes usar para resolver el problema planteado?*
- *¿Funcionará siempre ese método?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 36, 38, 39

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para dividir entre 9?

Formar grupos iguales, usar operaciones relacionadas de multiplicación y usar factores.

Math Journal

Explain which division facts were the easiest for you to learn.

Problem Solving • Two-Step Problems

Instructional Time: 1 day

Common Core Standard

CC.3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Also CC.3.OA.2, CC.3.OA.3, CC.3.OA.7

Lesson Objective

Solve two-step problems by using the strategy *act it out*.

Essential Question

¿Cómo usas la estrategia de *hacer una dramatización* para resolver problemas de dos pasos?

Materials

- MathBoard
- Math Journal
- *i*Tools: Counters

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to solve two-step division problems. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of division to develop sound mathematical practices by asking these questions.

- *¿Qué haces primero? ¿Por qué?*
- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Por qué las fichas son un buen modelo para el problema?*
- *¿Qué sucedería si divides antes de restar en el problema?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand how to solve two-step problems. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 6, 7

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de *hacer una dramatización* para resolver problemas de dos pasos?

Puedo hacer una dramatización del problema con fichas, descripciones, dibujos o ecuaciones. Todo esto organiza lo que hago y me ayuda a ver los pasos. También facilita la verificación de mi trabajo.

Math Journal

Write a division word problem and explain how to solve it by acting it out.

Investigate • Order of Operations

Instructional Time: 1 day

Note: The instructional time for this lesson can also be 2 days. On Day 1, complete Draw Conclusions, Make Connections, and Share and Show. On Day 2, complete Connect to Science and Extend the Math.

Common Core Standard

CC.3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Also CC.3.OA.1, CC.3.OA.2, CC.3.OA.3, CC.3.OA.7

Lesson Objective

Perform operations in order when there are no parentheses.

Essential Question

¿Por qué hay reglas como el orden de las operaciones?

Materials

- MathBoard
- Math Journal

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Investigate • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use the correct order of operations to solve equations. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of mathematical operations to develop sound mathematical practices by asking these questions.

- *¿Cómo usas el vocabulario matemático en tu explicación?*
- *¿Qué crees que sucederá si no sigues el orden de las operaciones?*
- *¿Qué hiciste primero? ¿Por qué?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 20 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

Students can begin independent practice once they understand the correct order of operations. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 16–20

4 Summarize Approximately 5 min.

Essential Question

¿Por qué hay reglas como el orden de las operaciones?

Las reglas aseguran que la respuesta sea la misma sin importar quién complete la ecuación.

Math Journal

Give a description of the rules for the order of operations in your own words.

Equal Parts of a Whole

Instructional Time: 1 day

Common Core Standard

CC.3.NF.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.

Also CC.3.G.2

Lesson Objective

Explore and identify equal parts of a whole.

Essential Question

¿Qué son las partes iguales de un todo?

Materials

- MathBoard
- Animated Math Models
- Math Journal
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to identify equal parts of a whole. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of partitive (sharing) division to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema planteado?*
- *¿Qué sucedería si cada uno de los trozos del sándwich se vuelven a cortar equitativamente?*
- *¿Cómo usas el vocabulario matemático en los comentarios o en tu respuesta?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand the concept of equal parts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 13, 14, 16, 19 or 20–24

4 Summarize Approximately 5 min.

Essential Question

¿Qué son las partes iguales de un todo?

Las partes iguales son partes exactamente del mismo tamaño, pero es posible que no tengan la misma forma.

Math Journal

Describe how 4 friends could share a sandwich equally.

Equal Shares

Instructional Time: 1 day

Common Core Standard

CC.3.NF.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.

Also CC.3.G.2

Lesson Objective

Divide models to make equal shares.

Essential Question

¿Por qué debes saber cómo formar partes iguales?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to divide models to make equal shares. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of models and division to develop sound mathematical practices by asking these questions.

- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Por qué elegiste ese método para dividir?*
- *¿Qué vocabulario matemático puedes usar en tu respuesta?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these division concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 6, 8

4 Summarize Approximately 5 min.

Essential Question

¿Por qué debes saber cómo formar partes iguales?

Respuesta posible: Cuando quiero compartir comida equitativamente, necesito saber cómo dividirla en partes iguales para que todos reciban la misma cantidad.

Math Journal

Draw a diagram to show 3 pizzas shared equally among 6 friends.

Unit Fractions of a Whole

Instructional Time: 1 day

Common Core Standard

CC.3.NF.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.

Also CC.3.G.2

Lesson Objective

Use a fraction to name one part of a whole that is divided into equal parts.

Essential Question

¿Qué indican el número superior y el número inferior de una fracción?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use unit fractions to find a whole. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of equal parts of wholes to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema planteado?*
- *¿Has resuelto un problema parecido a este? Describe las semejanzas.*
- *¿Cómo puedes representar una situación parecida a esta?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these fraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 13, 14, 17 or 18–22

4 Summarize Approximately 5 min.

Essential Question

¿Qué indican el número superior y el número inferior de una fracción?

El número superior indica cuántas partes iguales se cuentan. El número inferior indica cuántas partes iguales hay en el todo.

Math Journal

Draw a picture to show what 1 out of 3 equal parts looks like. Then write the fraction.

Fractions of a Whole

Instructional Time: 1 day

Common Core Standard

CC.3.NF.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.

Also CC.3.G.2

Lesson Objective

Read, write, and model fractions that represent more than one part of a whole that is divided into equal parts.

Essential Question

¿De qué manera una fracción nombra parte de un todo?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to name equal parts of a whole. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of fractions to develop sound mathematical practices by asking these questions.

- *¿Qué conclusiones puedes sacar a partir de los modelos dados?*
- *¿Cómo puedes usar el vocabulario matemático en tu respuesta?*
- *¿Qué sucede si se sombrean más trozos? ¿Y menos trozos?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these fraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 8, 10, 11, 15 or 17–20

4 Summarize Approximately 5 min.

Essential Question

¿De qué manera una fracción nombra parte de un todo?

El numerador indica cuántas partes iguales se cuentan; el denominador indica cuántas partes iguales hay en total.

Math Journal

Draw a rectangle and divide it into 4 equal parts. Shade 3 parts. Then write the fraction that names the shaded part.

Fractions on a Number Line

Instructional Time: 1 day

Common Core Standard

CC.3.NF.2a Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line.

Also CC.3.NF.2b, CC.3.NF.2

Lesson Objective

Represent and locate fractions on a number line.

Essential Question

¿Cómo representas y ubicas fracciones en una recta numérica?

Materials

- MathBoard
- Fraction Strips
- Math Journal
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to locate and name fractions on the number line. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of the number line and fractions to develop sound mathematical practices by asking these questions.

- *¿Qué te pide hacer el problema planteado?*
- *¿Puedes decirnos un método diferente para hallar la fracción?*
- *¿Puedes usar vocabulario matemático en tu respuesta?*
- *¿En qué se parece la recta numérica a una tira fraccionaria y a un círculo fraccionario?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these fraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 7, 8, 9, 10

4 Summarize Approximately 5 min.

Essential Question

¿Cómo representas y ubicas fracciones en una recta numérica?

Divido la recta numérica en longitudes iguales y hago una marca en la recta al final de cada longitud igual. Para ubicar una fracción, uso el numerador y cuento el número de longitudes iguales.

Math Journal

Explain how showing fractions with models and a number line are alike and different.

Relate Fractions and Whole Numbers

Instructional Time: 1 day

Common Core Standard

CC.3.NF.3c Explain equivalences of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form $3 = \frac{3}{1}$; recognize that $\frac{6}{1} = 6$; locate $\frac{4}{4}$ and 1 at the same point of a number line diagram.*

Also CC.3.NF.2, CC.3.NF.2a, CC.3.NF.2b, CC.3.G.2

Lesson Objective

Relate fractions and whole numbers by expressing whole numbers as fractions and recognizing fractions that are equivalent to whole numbers.

Essential Question

¿Cuándo usarías una fracción mayor que 1 o un número natural?

Materials

- MathBoard
- Fraction Strips
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to relate fractions and whole numbers. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of fractions and whole numbers to develop sound mathematical practices by asking these questions.

- *¿Qué situación puede representarse en esta recta numérica?*
- *¿Cómo cambiarías tu modelo si hay 8 partes iguales? ¿Si hay 10 partes iguales?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these fraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 8–11 or 12–16

4 Summarize Approximately 5 min.

Essential Question

¿Cuándo usarías una fracción mayor que 1 o un número natural?

Respuesta posible: Cuando describo cosas como pizzas enteras divididas en trozos iguales o los trozos que forman una pizza entera.

Math Journal

Write a problem that uses a fraction greater than 1.

Fractions of a Group

Instructional Time: 1 day

Common Core Standard

CC.3.NF.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.

Lesson Objective

Model, read, and write fractional parts of a group.

Essential Question

¿De qué manera una fracción nombra la parte de un grupo?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to a fraction to name part of a group. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of fractional parts to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre las partes de un todo?*
- *¿Qué te pide el problema planteado?*
- *¿Por qué la bandeja de panecillos es un buen modelo para este problema?*
- *¿Qué sucede cuando el denominador es menor que el numerador?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these fraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 10, 11, 13, 14 or 15–17

4 Summarize Approximately 5 min.

Essential Question

¿De qué manera una fracción nombra la parte de un grupo?

Puedes usar el número total en el grupo o el número de subgrupos para el denominador. El numerador es el número de objetos o subgrupos que cuentas.

Math Journal

Draw a set of objects where you can find a fractional part of the group using the total number of objects and by using subgroups.

Finding Part of a Group Using Unit Fractions

Instructional Time: 1 day

Common Core Standard

CC.3.NF.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.

Lesson Objective

Find fractional parts of a group using unit fractions.

Essential Question

¿De qué manera una fracción puede indicar cuántos hay en parte del grupo?

Materials

- MathBoard
- two-color counters
- Math Journal
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use unit fractions to find part of a group. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of fractional parts to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre los procesos de multiplicación y división?*
- *¿Qué te pide hacer el problema planteado?*
- *¿Funcionará siempre el método que se muestra?*
- *¿En qué se parece el método a la división?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these fraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 13–15 or 16–18

4 Summarize Approximately 5 min.

Essential Question

¿De qué manera una fracción puede indicar cuántos hay en parte del grupo?

Se usa el denominador para calcular en cuántos grupos iguales y más pequeños debe dividirse el número total en el grupo. Luego, se usa el numerador para calcular cuántos grupos se cuentan y contar el número total de objetos en esos grupos.

Math Journal

Explain how to find which is greater: $\frac{1}{4}$ of 12 or $\frac{1}{3}$ of 12.

Problem Solving • Find the Whole Group Using Unit Fractions

Instructional Time: 1 day

Note: The instructional time for this lesson can also be 2 days. Use the extra time for students to work together with counters to complete Try Another Problem. Allow students to reason and self-correct. Complete Share and Show exercises 1 and 2 as a class.

Common Core Standard

CC.3.NF.1 Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.

Lesson Objective

Solve fraction problems by using the strategy *draw a diagram*.

Essential Question

¿Cómo usas la estrategia de *dibujar un diagrama* para resolver problemas de fracciones?

Materials

- MathBoard
- Math Journal
- Real World Video, Ch. 8
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use unit fractions to find the whole group. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of fractions to develop sound mathematical practices by asking these questions.

- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Qué operación usaste para representar la situación?*
- *¿Qué sucede cuando cambia el denominador?*
- *¿Cómo usas el vocabulario matemático en tu respuesta?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand how to draw a diagram to find the whole group. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 6, 7

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de *dibujar un diagrama* para resolver problemas de fracciones?

Puedo usar un diagrama para representar todos los grupos iguales en un todo. Luego, puedo dibujar el número de objetos en cada grupo. Finalmente, puedo sumar o multiplicar para calcular cuántos objetos hay en el todo.

Problem Solving • Compare Fractions

Instructional Time: 1 day

Common Core Standard

CC.3.NF.3d Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Also CC.3.NF.1

Lesson Objective

Solve comparison problems by using the strategy *act it out*.

Essential Question

¿Cómo usas la estrategia de *hacer una dramatización* para resolver problemas de comparación?

Materials

- MathBoard
- Fraction Circles
- Fraction Strips
- Math Journal
- Animated Math Models
- HMH Mega Math
- iTools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to solve comparison problems with fractions. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of fractions to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre numeradores y denominadores?*
- *¿Qué estrategia puedes usar?*
- *¿Qué conclusiones puedes sacar de tu modelo?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand how to compare fractions. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 6, 7

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de *hacer una dramatización* para resolver problemas de comparación?

Para comparar fracciones puedo usar tiras o círculos fraccionarios para representar cada fracción y comparar los modelos.

Math Journal

Explain how you can find whether $\frac{5}{6}$ or $\frac{5}{8}$ is greater.

Compare Fractions with the Same Denominator

Instructional Time: 1 day

Common Core Standard

CC.3.NF.3d Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Also CC.3.NF.1, CC.3.NF.2b

Lesson Objective

Compare fractions with the same denominator by using models and reasoning strategies.

Essential Question

¿Cómo comparas fracciones con el mismo denominador?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Fractions
- *i*Tools: Number Lines

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to compare fractions of a whole and fractions of a group when the denominators are the same. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of fractions to develop sound mathematical practices by asking these questions.

- *¿Qué modelo elegiste para resolver el problema planteado? ¿Por qué fue esta la mejor elección?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Cómo usas el vocabulario matemático en tu respuesta?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand fraction comparison strategies. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 10–13 or 14, 15, 17

4 Summarize Approximately 5 min.

Essential Question

¿Cómo comparas fracciones con el mismo denominador?

Puedo usar tiras fraccionarias para representar cada fracción y mostrar su ubicación en una recta numérica. Luego, puedo comparar las longitudes para hallar la mayor de las fracciones.

Math Journal

Explain how you can use reasoning to compare two fractions with the same denominator.

Compare Fractions with the Same Numerator

Instructional Time: 1 day

Common Core Standard

CC.3.NF.3d Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Also CC.3.NF.1

Lesson Objective

Compare fractions with the same numerator by using models and reasoning strategies.

Essential Question

¿Cómo comparas fracciones con el mismo numerador?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to compare fractions with the same numerator. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling and fractions to develop sound mathematical practices by asking these questions.

- *¿Has resuelto un problema parecido a este? ¿Qué tiene de diferente?*
- *¿Cuál podría ser un buen modelo para este problema?*
- *¿Qué harás primero? ¿Por qué?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these fraction comparison concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 13, 14, 16

4 Summarize Approximately 5 min.

Essential Question

¿Cómo comparas fracciones con el mismo numerador?

Puedo ver el denominador y comparar el tamaño de los trozos. La fracción con el mayor denominador tiene trozos más pequeños, por lo tanto es la menor de las fracciones.

Math Journal

Explain how the number of pieces in a whole relates to the size of each piece.

Compare Fractions

Instructional Time: 1 day

Common Core Standard

CC.3.NF.3d Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Also CC.3.NF.1, CC.3.NF.3

Lesson Objective

Compare fractions by using models and strategies involving the size of the pieces in the whole.

Essential Question

¿Qué estrategias puedes usar para comparar fracciones?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use strategies to compare the sizes of pieces in a whole. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of comparing fractions to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre fracciones con el mismo denominador? ¿Con el mismo numerador?*
- *¿Qué pide el problema?*
- *¿Qué estrategia funcionará mejor para el problema planteado?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these fraction comparison concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 11, 14, 16

4 Summarize Approximately 5 min.

Essential Question

¿Qué estrategias puedes usar para comparar fracciones?

Puedo usar la estrategia de los trozos desconocidos, la estrategia del mismo numerador o la del mismo denominador para comparar fracciones.

Math Journal

Explain how to use the missing pieces strategy to compare two fractions. Include a diagram with your explanation.

Compare Fractions

Instructional Time: 1 day

Note: The instructional time for this lesson can also be 2 days. On Day 1, complete Activity 1 and Activity 2. On Day 2, complete Extend the Math, and Share and Show.

Common Core Standard

CC.3.NF.3d Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Also CC.3.NF.1

Lesson Objective

Compare and order fractions by using models and reasoning strategies.

Essential Question

¿Cómo comparas y ordenas fracciones?

Materials

- MathBoard
- color pencils
- Math Journal
- Real World Video, Ch. 9
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to compare and order fractions. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of comparing fractions to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre cómo comparar fracciones?*
- *¿Cómo usarás la información?*
- *¿Qué métodos usarás para ordenar las fracciones dadas?*
- *¿Funcionará siempre ese método?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand comparing and ordering fractions. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 7, 10, 11 or 12–14

4 Summarize Approximately 5 min.

Essential Question

¿Cómo comparas y ordenas fracciones?

Si los denominadores son iguales, puedes comparar los numeradores para ordenar el número de trozos. Si los numeradores son iguales, puedes comparar los denominadores para ordenar el tamaño de los trozos.

Math Journal

Describe how fraction strips can help you order fractions.

Investigate • Model Equivalent Fractions

Instructional Time: 1 day

Common Core Standard

CC.3.NF.3a Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

Also CC.3.NF.1, CC.3.NF.2a, CC.3.NF.2b, CC.3.NF.3, CC.3.NF.3b, CC.3.NF.3c, CC.3.G.2

Lesson Objective

Model equivalent fractions by folding paper, using area models, and using number lines.

Essential Question

¿Cómo usas modelos para calcular fracciones equivalentes?

Materials

- MathBoard
- sheet of paper
- crayon or color pencil
- Fraction Strips
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Investigate • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to find equivalent fractions. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling and fractions to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema?*
- *¿Qué estrategia intentarás?*
- *¿Hay alguna otra estrategia que puedas usar para resolver el problema planteado?*
- *¿Qué conclusiones puedes sacar de tu modelo?*

3 Practice

Share and Show Approximately 20 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

Students can begin independent practice once they understand these fraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 6, 7

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas modelos para calcular fracciones equivalentes?

Puedo doblar mi hoja de papel por la mitad y escribir $\frac{1}{2}$ en una de las partes. Puedo doblarla de nuevo para hacer más partes iguales. Puedo rotular cada una de las partes dobladas y comparar las partes para hallar fracciones equivalentes.

Math Journal

Draw a number line that shows two equivalent fractions. Label your number line and explain how you know the fractions are equivalent.

Equivalent Fractions

Instructional Time: 1 day

Common Core Standard

CC.3.NF.3b Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g. by using a visual fraction model.

Also CC.3.NF.1, CC.3.NF.2a, CC.3.NF.2b, CC.3.NF.3, CC.3.NF.3b, CC.3.NF.3c, CC.3.G.2

Lesson Objective

Generate equivalent fractions by using models.

Essential Question

¿Cómo usas modelos para nombrar fracciones equivalentes?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Fractions

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Investigate • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to name equivalent fractions. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of modeling and fractions to develop sound mathematical practices by asking these questions.

- *¿Qué pide el problema?*
- *¿Qué recuerdas sobre la comparación de fracciones?*
- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Cómo sabes que tu respuesta tiene sentido?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these fraction concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 10–12 or 13–16

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas modelos para nombrar fracciones equivalentes?

Puedo sombrear modelos y hacer dibujos para mostrar partes iguales.

Math Journal

Explain how you can find a fraction that is equivalent to $\frac{1}{4}$.

Time to the Minute

Instructional Time: 1 day

Common Core Standard

CC.3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Lesson Objective

Read, write, and tell time on analog and digital clocks to the nearest minute.

Essential Question

¿Cómo lees la hora al minuto más cercano?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Measurement
- Animated Math Models

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to tell time to the nearest minute. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of telling time to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre cómo leer la hora?*
- *¿Qué estrategia puedes usar para que sea más fácil leer la hora?*
- *¿Funcionará siempre ese método?*
- *¿Cómo lo sabes?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these time measurement concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 6, 9, 11 or 12–15

4 Summarize Approximately 5 min.

Essential Question

¿Cómo lees la hora al minuto más cercano?

Nombro la hora y luego cuento de cinco en cinco y de uno en uno hasta donde apunte el minutero.

Math Journal

Draw a clock showing a time to the nearest minute. Write the time as many different ways as you can.

A.M. and P.M.

Instructional Time: 1 day

Common Core Standard

CC.3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Lesson Objective

Describe when to use A.M. and P.M. when telling time to the nearest minute.

Essential Question

¿Cómo sabes cuándo usar a. m. y p. m. con la hora?

Materials

- MathBoard
- Animated Math Models
- Math Journal
- *i*Tools: Measurement

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use A.M. and P.M. when telling time. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of time to develop sound mathematical practices by asking these questions.

- *¿Has resuelto un problema parecido a este? Describe las semejanzas.*
- *¿Qué herramienta puedes usar para resolver este problema?*
- *¿Por qué una recta numérica es un buen modelo para este problema?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these time measurement concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 15–17

4 Summarize Approximately 5 min.

Essential Question

¿Cómo sabes cuándo usar a. m. y p. m. con la hora?

Respuesta posible: Las horas a. m. son después de la medianoche y antes del mediodía. Y son horas en la mañana. Las horas p. m. son después del mediodía y antes de la medianoche y son horas en la tarde o la noche.

Math Journal

Write your schedule for today. List each activity with its starting time. Write A.M. or P.M. for each time.

Measure Time Intervals

Instructional Time: 1 day

Common Core Standard

CC.3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Lesson Objective

Use a number line or an analog clock to measure time intervals in minutes.

Essential Question

¿Cómo mides el tiempo transcurrido en minutos?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- *i*Tools: Number Lines
- *i*Tools: Measurement

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use the number line or a clock to measure time intervals. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of measuring time to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre el uso de cálculo mental para sumar números?*
- *¿Qué herramienta puedes usar para resolver este problema?*
- *¿Por qué una recta numérica es una buena herramienta para este problema?*
- *¿Qué otro método puedes usar para resolver este problema?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these time measurement concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 6, 7 or 8–10

4 Summarize Approximately 5 min.

Essential Question

¿Cómo mides el tiempo transcurrido en minutos?

Respuesta posible: Hallo la hora inicial. Luego, uso una recta numérica, un reloj analógico o la resta para contar los minutos hasta la hora final.

Math Journal

Describe two different methods to find the elapsed time from 2:30 P.M. to 2:58 P.M.

Use Time Intervals

Instructional Time: 1 day

Common Core Standard

CC.3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Also CC.3.NBT.2

Lesson Objective

Use a number line or an analog clock to add or subtract time intervals to find starting times or ending times.

Essential Question

¿Cómo calculas el tiempo inicial o el tiempo final cuando conoces el tiempo transcurrido?

Materials

- MathBoard
- Math Journal
- Real World Video, Ch. 10
- Animated Math Models
- *i*Tools: Number Lines
- *i*Tools: Measurement

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to find starting or ending times when they know the elapsed time. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of measuring time to develop sound mathematical practices by asking these questions.

- *¿Has resuelto un problema parecido a este? Describe las semejanzas.*
- *¿Qué herramienta puedes usar para resolver el problema planteado?*
- *¿Por qué una recta numérica es una buena herramienta para el problema?*
- *¿Funcionará siempre ese método?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these time measurement concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 7–9

4 Summarize Approximately 5 min.

Essential Question

¿Cómo calculas el tiempo inicial o el tiempo final cuando conoces el tiempo transcurrido?

Respuesta posible: Puedo usar una recta numérica o un reloj para comenzar en la hora final, contar hacia atrás el tiempo transcurrido para obtener el tiempo inicial. Puedo comenzar en el tiempo inicial y contar hacia adelante el tiempo transcurrido para obtener el tiempo final.

Math Journal

Describe a situation in your life when you need to know how to find a starting time.

Problem Solving • Time Intervals

Instructional Time: 1 day

Common Core Standard

CC.3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Also CC.3.OA.8, CC.3.NBT.2

Lesson Objective

Solve problems involving addition and subtraction of time intervals by using the strategy *draw a diagram*.

Essential Question

¿Cómo usas la estrategia de *dibujar un diagrama* para resolver problemas sobre la hora?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Number Lines
- *i*Tools: Measurement

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to solve problems involving addition and subtraction of time intervals. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of time intervals to develop sound mathematical practices by asking these questions.

- *¿Qué hiciste primero? ¿Por qué?*
- *¿Qué estrategia puedes usar para resolver el problema planteado?*
- *¿Funcionará siempre ese método?*
- *¿Por qué una recta numérica es una buena herramienta para este problema?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these time interval concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 6, 7

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de *dibujar un diagrama* para resolver problemas sobre la hora?

Respuesta posible: Puedo dibujar una recta numérica para hallar la solución a un problema de tiempo transcurrido.

Math Journal

Write a multistep word problem that has at least two amounts of elapsed time. The problem may require finding a starting time or ending time. Include a solution.

Measure Length

Instructional Time: 1 day

Common Core Standard

CC.3.MD.4 Generate measurement data by measuring lengths using rules marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units–whole numbers, halves, or quarters.

Lesson Objective

Measure length to the nearest half or fourth inch and use measurement data to make a line plot.

Essential Question

¿Cómo generas datos de medición y representas los datos en un diagrama de puntos?

Materials

- MathBoard
- inch ruler
- crayons
- Math Journal
- Animated Math Models
- HMH Mega Math

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to measure length to the nearest half or fourth inch and show measurement data in a line plot. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of measurement and data displays to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre medir longitudes?*
- *¿Qué recuerdas sobre diagramas de puntos?*
- *¿Por qué un diagrama de puntos es una buena herramienta para representar datos?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these measurement and data display concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 7, 9 or 10–12

4 Summarize Approximately 5 min.

Essential Question

¿Cómo generas datos de medición y representas los datos en un diagrama de puntos?

Respuesta posible: Puedo alinear la marca del cero en la regla con el extremo izquierdo del objeto que mido. Luego, puedo hallar la unidad más cercana al extremo derecho del objeto que mido. Puedo medir la longitud de muchos objetos parecidos y luego puedo hacer un diagrama de puntos para representar mis datos.

Math Journal

Measure the lengths of 10 color pencils to the nearest fourth inch. Then make a line plot of the data.

Estimate and Measure Liquid Volume

Instructional Time: 1 day

Common Core Standard

CC.3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given the same units, e.g., by using drawings (such as a breaker with a measurement scale) to represent the problem.

Lesson Objective

Estimate and measure liquid volume in liters.

Essential Question

¿Cómo estimas y mides el volumen de un líquido en unidades métricas?

Materials

- MathBoard
- 1–L beaker
- containers
- water
- tape
- Math Journal
- Animated Math Models
- *i*Tools: Measurement

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to estimate and measure liquid volume in liters. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of measurement to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre el volumen de un líquido?*
- *¿Qué herramienta puede ayudarte con este problema?*
- *¿Cómo sabes que las cantidades son equivalentes?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these measurement concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 8–10 or 11–13

4 Summarize Approximately 5 min.

Essential Question

¿Cómo estimas y mides el volumen de un líquido en unidades métricas?

Respuesta posible: Puedo usar puntos de referencia para visualizar y estimar el número de litros de líquido que puede contener el envase cuando está lleno y luego medir el volumen real del líquido usando un vaso de precipitado lleno con agua hasta la marca de 1 litro.

Estimate and Measure Mass

Instructional Time: 1 day

Common Core Standard

CC.3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given the same units, e.g., by using drawings (such as a breaker with a measurement scale) to represent the problem.

Lesson Objective

Estimate and measure mass in grams and kilograms.

Essential Question

¿Cómo haces una estimación y mides masa en unidades métricas?

Materials

- MathBoard
- pan balance
- gram and kilogram masses
- classroom objects
- Math Journal
- Animated Math Models
- *i*Tools: Measurement

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to estimate and measure mass in grams and kilograms. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of estimation and measurement to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre medir masas?*
- *¿Qué herramienta puedes usar como ayuda?*
- *¿Cómo sabes que las cantidades son equivalentes?*
- *¿Funcionará siempre ese método?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these measurement concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 6, 9, 10 or 11–14

4 Summarize Approximately 5 min.

Essential Question

¿Cómo haces una estimación y mides masa en unidades métricas?

Respuesta posible: Comparo el objeto a un clip pequeño para un gramo o a una caja de 1,000 clips para un kilogramo. Uso masas en gramos o en kilogramos; coloco el objeto en una balanza de platillos y agrego masas en gramos o en kilogramos en el otro platillo hasta que los platillos estén al mismo nivel.

Math Journal

Name an object in your home that has a mass of about 1 kg.

Solve Problems About Liquid Volume and Mass

Instructional Time: 1 day

Common Core Standard

CC.3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given the same units, e.g., by using drawings (such as a breaker with a measurement scale) to represent the problem.

Also CC.3.OA.7, CC.3.NBT.2

Lesson Objective

Add, subtract, multiply, or divide to solve problems involving liquid volumes or masses.

Essential Question

¿Cómo usas modelos para resolver problemas sobre el volumen de un líquido y problemas de masa?

Materials

- MathBoard
- pan balance
- gram masses
- glue stick
- Math Journal
- *i*Tools: Number Lines

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to solve problems involving liquid volume or mass. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of mathematical operations to develop sound mathematical practices by asking these questions.

- *¿Has resuelto un problema parecido a este? Describe las semejanzas.*
- *¿Qué operación elegiste para representar la situación?*
- *¿Por qué un modelo de barras es un buen modelo para este tipo de problema?*
- *¿Qué conclusiones puedes sacar de tu modelo?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these problem-solving and measurement concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 6, 7

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas modelos para resolver problemas sobre el volumen de un líquido y problemas de masa?

Respuesta posible: Primero puede dibujarse un modelo de barras para representar la información en el problema. Después, puede usarse el modelo de barras para escribir una ecuación. Luego, se resuelve la ecuación.

Math Journal

Write a problem that can be solved with a bar model that shows equal liters. Then solve the problem.

Investigate • Model Perimeter

Instructional Time: 1 day

Common Core Standard

CC.3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Lesson Objective

Explore perimeter of polygons by counting units on grid paper.

Essential Question

¿Cómo calculas el perímetro?

Materials

- MathBoard
- geoboard
- rubber bands
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Investigate • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to find perimeter. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of polygons to develop sound mathematical practices by asking these questions.

- *¿Por qué una geotabla es un buen modelo para este tipo de problema?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Cómo cambiaría tu modelo si son 4 unidades en cada lado?*
- *¿Cuál puede ser un atajo para calcular el perímetro?*

3 Practice

Share and Show Approximately 20 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

Students can begin independent practice once they understand the concept of perimeter. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5, 7, 8

4 Summarize Approximately 5 min.

Essential Question

¿Cómo calculas el perímetro?

Respuesta posible: Para calcular el perímetro de una figura puedo sumar las longitudes de sus lados para obtener la suma total. Si todos los lados tienen la misma longitud, puedo multiplicar la longitud de cada lado por el número de lados.

Math Journal

Draw a rectangle and another shape that is not a rectangle by tracing lines on grid paper. Describe how to find the perimeter of both shapes.

Find Perimeter

Instructional Time: 1 day

Common Core Standard

CC.3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Also CC.3.NBT.2, CC.3.MD.4

Lesson Objective

Estimate and measure perimeter of polygons using inch and centimeter rules.

Essential Question

¿Cómo mides el perímetro?

Materials

- MathBoard
- inch ruler
- centimeter ruler
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to estimate and measure perimeter of polygons using rulers. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of measurement and perimeter to develop sound mathematical practices by asking these questions.

- *¿Has resuelto un problema parecido a este? Describe las semejanzas.*
- *¿Cómo resuelves el problema con la ayuda de la estimación?*
- *¿Cómo sabes que esas respuestas son equivalentes?*
- *¿Cómo resuelves el problema con la ayuda de papel cuadriculado?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these measurement concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 6–8 or 9–12

4 Summarize Approximately 5 min.

Essential Question

¿Cómo mides el perímetro?

Respuesta posible: Puedo hacer una estimación del perímetro de una figura usando puntos de referencia. Puedo usar una regla en pulgadas para hallar la longitud de cada lado. Luego, sumo las longitudes y comparo el perímetro a la estimación.

Math Journal

Draw two different shapes that each have a perimeter of 20 units.

Algebra • Find Unknown Side Lengths

Instructional Time: 1 day

Common Core Standard

CC.3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Also CC.3.NBT.2

Lesson Objective

Find the unknown length of a side of a polygon when you know its perimeter.

Essential Question

¿Cómo calculas la longitud desconocida de uno de los lados de una figura plana cuando conoces su perímetro?

Materials

- MathBoard
- Animated Math Models
- Math Journal
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to find the unknown length of the side of a polygon. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of perimeter to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre operaciones inversas?*
- *¿Qué hiciste primero? ¿Por qué?*
- *¿Cómo apoya el dibujo tu trabajo?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand the concept of perimeter. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 5, 7

4 Summarize Approximately 5 min.

Essential Question

¿Cómo calculas la longitud desconocida de uno de los lados de una figura plana cuando conoces su perímetro?

Respuesta posible: Puedo sumar las longitudes de los lados que conozco y restar la suma del perímetro para obtener la longitud del lado desconocido.

Math Journal

Explain how to write and solve an equation to find an unknown side length of a rectangle when given the perimeter.

Understand Area
Instructional Time: 1 day

Common Core Standard
CC.3.MD.5 Recognize areas as an attribute of plane figures and understand concepts of area measurement.

Also CC.3.MD.5a, CC.3.MD.5b, CC.3.MD.6, CC.3.MD.8

Lesson Objective

Explore perimeter and area as attributes of polygons.

Essential Question

¿En qué se diferencia el cálculo del área de una figura al cálculo del perímetro?

Materials

- MathBoard
- geoboard
- rubber bands
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to relate perimeter and area in polygons and use square units. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of perimeter and area to develop sound mathematical practices by asking these questions.

- *¿Qué herramienta te ayuda a resolver este problema?*
- *¿Por qué una geotabla es una buena herramienta para este tipo de dibujo?*
- *¿Cómo apoya el dibujo tu trabajo?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 7, 12, 15, 16, 19 or 20–23

4 Summarize Approximately 5 min.

Essential Question

¿En qué se diferencia el cálculo del área de una figura al cálculo del perímetro?

Respuesta posible: Para calcular el área, debo calcular el número de unidades cuadradas necesarias para cubrir la figura. Para calcular el perímetro, calculo el número de unidades alrededor de la figura.

Math Journal

Draw a rectangle using dot paper. Find the area, and explain how you found your answer.

Measure Area

Instructional Time: 1 day

Common Core Standard

CC.3.MD.5b Recognize areas as an attribute of plane figures and understand concepts of area measurement. A plane figure which can be converted without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.

Also CC.3.MD.5, CC.3.MD.5a, CC.3.MD.6, CC.3.MD.7a

Lesson Objective

Estimate and measure area of plane shapes by counting unit squares.

Essential Question

¿Cómo calculas el área de una figura plana?

Materials

- MathBoard
- scissors
- green and blue paper
- 1-Inch Grid Paper
- Math Journal
- Real World Video, Ch. 11
- Animated Math Models
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to estimate and measure area by counting unit squares. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of estimation and measurement to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre el área?*
- *¿Cómo resuelves el problema con la ayuda de la estimación?*
- *¿Cómo apoya el dibujo tu trabajo?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these area concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 5 or 6–9

4 Summarize Approximately 5 min.

Essential Question

¿Cómo calculas el área de una figura plana?

Puedo hacer una estimación del área adivinando aproximadamente cuántas unidades cuadradas caben dentro de la figura. Puedo calcular el área usando fichas cuadradas, asegurándome de no dejar espacios vacíos o superposiciones y contando el número de unidades cuadradas dentro de la figura.

Math Journal

Explain how to find the area of a shape using square tiles.

Use Area Models

Instructional Time: 1 day

Common Core Standard

CC.3.MD.7 Relate area to the operations of multiplication and addition.

Also CC.3.MD.5, CC.3.MD.5a, CC.3.MD.5b, CC.3.MD.6, CC.3.MD.7a, CC.3.MD.7b, CC.3.OA.3, CC.3.OA.7, CC.3.NBT.2

Lesson Objective

Relate area to addition and multiplication by using area models.

Essential Question

¿Por qué puedes multiplicar para calcular el área de un rectángulo?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to use repeated addition and multiplication to find area. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of area to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre la relación entre la suma y la multiplicación?*
- *¿Por qué una matriz rectangular es un buen modelo para el problema?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Cuál puede ser un atajo para calcular el área?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand the concept of area. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 7, 8, 10 or 11–12

4 Summarize Approximately 5 min.

Essential Question

¿Por qué puedes multiplicar para calcular el área de un rectángulo?

Un rectángulo es como una matriz con hileras de igual número de unidades cuadradas. Puedo usar la multiplicación para calcular el área de un rectángulo así como puedo usar una matriz para resolver un problema de multiplicación.

Math Journal

Describe each of the three methods you can use to find the area of a rectangle.

Problem Solving Areas of Rectangles

Instructional Time: 1 day

Common Core Standard

CC.3.MD.7b Relate area to the operations of multiplication and addition. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

Also CC.3.OA.3, CC.3.OA.7, CC.3.OA.9

Lesson Objective

Solve area problems using the strategy *find a pattern*.

Essential Question

¿Cómo resuelves problemas de área con la estrategia de *hallar un patrón*?

Materials

- MathBoard
- Math Journal
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to find a pattern to solve area problems. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of area and patterns to develop sound mathematical practices by asking these questions.

- *¿Has resuelto algún problema parecido al problema dado? Describe las semejanzas.*
- *¿Qué hiciste primero? ¿Por qué?*
- *¿Por qué una tabla es una buena herramienta o modelo para este problema?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Cómo descubriste ese patrón?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these area and pattern concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 5, 6

4 Summarize Approximately 5 min.

Essential Question

¿Cómo resuelves problemas de área con la estrategia de *hallar un patrón*?

Puedo hacer una tabla para anotar las longitudes y los anchos de los rectángulos y calcular sus áreas. Luego, puedo examinar la tabla para hallar patrones de longitud, ancho y áreas.

Math Journal

Write and solve an area problem that illustrates how to use the *find a pattern* strategy.

Area of Combined Rectangles

Instructional Time: 1 day

Common Core Standard

CC.3.MD.7c Relate area to the operations of multiplication and addition. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $c \times c$. Use area models to represent the distributive properly in mathematical reasoning.

Also CC.3.MD.5, CC.3.MD.5a, CC.3.MD.5b, CC.3.MD.7b, CC.3.MD.7d, CC.3.OA.3, CC.3.OA.5, CC.3.OA.7, CC.3.NBT.2

Lesson Objective

Apply the Distributive Property to area models and to find the area of combined rectangles.

Essential Question

¿Cómo separas una figura para calcular el área?

Materials

- MathBoard
- Math Journal
- square tiles

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to apply the Distributive Property to find the area of combined rectangles. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of area to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre la propiedad distributiva?*
- *¿Has resuelto algún problema parecido al problema dado? Describe las semejanzas.*
- *¿Por qué las fichas cuadradas son un buen modelo para este problema?*
- *¿Cómo apoya el dibujo tu trabajo?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these area concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 6, 7 or 8–11

4 Summarize Approximately 5 min.

Essential Question

¿Cómo separas una figura para calcular el área?

Puedo separar una figura en rectángulos, calcular el área de ambos rectángulos y luego sumar las áreas para obtener el área total de la figura original.

Math Journal

Draw a shape that is not a rectangle and find its area. Use grid paper and show each step.

Same Perimeter, Different Areas

Instructional Time: 1 day

Common Core Standard

CC.3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Also CC.3.MD.5, CC.3.MD.5a, CC.3.MD.5b, CC.3.MD.7b, CC.3.OA.3, CC.3.OA.7, CC.3.NBT.2

Lesson Objective

Compare areas of rectangles that have the same perimeter.

Essential Question

¿Cómo usas el área para comparar rectángulos con el mismo perímetro?

Materials

- MathBoard
- square tiles
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to compare areas of rectangles that have the same perimeter. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of area and perimeter to develop sound mathematical practices by asking these questions.

- *¿Has resuelto algún problema parecido al problema dado? Describe las semejanzas.*
- *¿Por qué las fichas cuadradas son un buen modelo para este problema?*
- *¿Cómo usas una tabla para resolver este problema?*
- *¿Cómo apoya el dibujo tu respuesta?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 7, 8, 9

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas el área para comparar rectángulos con el mismo perímetro?

Respuesta posible: Puedo hacer rectángulos diferentes con el mismo perímetro. Luego, puedo calcular las áreas para ver cómo cambian.

Math Journal

Draw three examples of rectangles that have the same perimeter, but different areas. Note which of the areas is greatest and which is smallest.

Same Area, Different Perimeters

Instructional Time: 1 day

Common Core Standard

CC.3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Also CC.3.MD.5, CC.3.MD.5a, CC.3.MD.5b, CC.3.MD.7b, CC.3.OA.3, CC.3.OA.7, CC.3.NBT.2

Lesson Objective

Compare perimeters of rectangles that have the same area.

Essential Question

¿Cómo usas el perímetro para comparar rectángulos con la misma área?

Materials

- MathBoard
- square tiles
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to compare perimeters of rectangles that have the same area. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of perimeter and area to develop sound mathematical practices by asking these questions.

- *¿Has resuelto algún problema parecido al problema dado? Describe las semejanzas.*
- *¿Por qué el papel cuadriculado es una buena herramienta o modelo para este problema?*
- *¿Qué conclusiones puedes sacar de tu modelo?*
- *¿Cómo apoya el dibujo tu trabajo?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 7, 8, 9

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas el perímetro para comparar rectángulos con la misma área?

Puedo crear rectángulos diferentes con la misma área. Luego, puedo calcular los perímetros para ver cómo cambian.

Math Journal

Draw two rectangles with different perimeters but the same area.

Describe Plane Shapes

Instructional Time: 1 day

Common Core Standard

CC.3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a ladder category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Lesson Objective

Identify and describe attributes of plane shapes.

Essential Question

¿De qué maneras puedes describir figuras bidimensionales?

Materials

- MathBoard
- Animated Math Models
- Math Journal
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to identify and describe attributes of plane shapes. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of geometry to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre las diferentes figuras planas?*
- *¿Qué sucede cuando colocas una flecha en el extremo de un segmento?*
- *¿Cómo lo sabes?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 10, 12, 14, 16 or 18–21

4 Summarize Approximately 5 min.

Essential Question

¿De qué maneras puedes describir figuras bidimensionales?

Las figuras bidimensionales tienen longitud y ancho pero no tienen grosor.

Math Journal

Draw an open shape and closed shape. Label your shapes.

Describe Angles in Plane Shapes

Instructional Time: 1 day

Common Core Standard

CC.3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a ladder category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Lesson Objective

Describe angles in plane shapes.

Essential Question

¿Cómo describes los ángulos en figuras planas?

Materials

- MathBoard
- bendable straws
- scissors
- Math Journal
- *i*Tools: Measurement
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to describe angles in plane shapes and use appropriate mathematics terminology. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of geometry to develop sound mathematical practices by asking these questions.

- *¿Por qué el papel punteado es una buena herramienta para esta actividad?*
- *¿Por qué las pajillas que se doblan son un buen modelo para los ángulos?*
- *¿Por qué los relojes analógicos son un buen modelo para los ángulos?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 9, 13, 14

4 Summarize Approximately 5 min.

Essential Question

¿Cómo describes los ángulos en figuras planas?

Puedo describir un ángulo como un ángulo recto si forma una esquina cuadrada. Puedo identificar ángulos que sean mayores o menores que un ángulo recto comparando los ángulos con el ángulo recto.

Math Journal

Draw an example of a shape that has at least one right angle, one angle less than a right angle, and one angle greater than a right angle. Label the angles.

Identify Polygons

Instructional Time: 1 day

Common Core Standard

CC.3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a ladder category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Lesson Objective

Identify polygons by the number of sides they have.

Essential Question

¿Cómo usas segmentos y ángulos para hacer polígonos?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to identify polygons by the number of sides and angles they have. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of geometry to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre segmentos y ángulos?*
- *¿Cómo sabes que una figura es un polígono?*
- *¿Cuándo no se cumple esto?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 9, 10, 12, 13 or 14–17

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas segmentos y ángulos para hacer polígonos?

Respuesta posible: Trazo segmentos de manera que formen una figura cerrada.

Math Journal

Draw a pentagon. Explain how you knew the number of sides and angles to draw.

Describe Sides of Polygons

Instructional Time: 1 day

Common Core Standard

CC.3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a ladder category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Lesson Objective

Determine if lines or line segments are intersecting, perpendicular, or parallel.

Essential Question

¿Cómo describes los segmentos que son lados de polígonos?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to determine if sides of polygons are intersecting, perpendicular, or parallel. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of geometry to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre segmentos, rectas y semirrectas?*
- *¿Cuándo sabes que una figura es un polígono?*
- *¿Cuándo no se cumple esto?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5–7 or 8–13

4 Summarize Approximately 5 min.

Essential Question

¿Cómo describes los segmentos que son lados de polígonos?

Respuesta posible: Los segmentos que forman los lados de los polígonos se intersecan. Algunos pueden ser paralelos o perpendiculares entre sí.

Math Journal

Give some examples of perpendicular lines inside or outside your classroom.

Classify Quadrilaterals

Instructional Time: 1 day

Common Core Standard

CC.3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a ladder category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Lesson Objective

Describe, classify, and compare quadrilaterals based on sides and angles.

Essential Question

¿Cómo describes cuadriláteros con la ayuda de sus lados y ángulos?

Materials

- MathBoard
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to describe quadrilaterals based on their sides and angles. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of geometry to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre los cuadriláteros?*
- *¿Qué recuerdas sobre líneas paralelas y perpendiculares?*
- *¿Qué sucedería si no se unen todos los lados?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 7–9 or 11, 16, 20

4 Summarize Approximately 5 min.

Essential Question

¿Cómo describes cuadriláteros con la ayuda de sus lados y ángulos?

Todos los cuadriláteros tienen 4 lados y nombres especiales si los lados son paralelos o perpendiculares o de la misma longitud.

Math Journal

Explain how a trapezoid and rectangle are different.

Draw Quadrilaterals

Instructional Time: 1 day

Common Core Standard

CC.3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a ladder category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Lesson Objective

Draw quadrilaterals.

Essential Question

¿Cómo dibujas cuadriláteros?

Materials

- MathBoard
- ruler
- Math Journal
- Animated Math Models
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to draw quadrilaterals. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of geometry to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre los cuadriláteros?*
- *¿Por qué el papel cuadriculado es una buena herramienta para esta actividad?*
- *¿Qué otra herramienta puedes usar para dibujar cuadriláteros?*
- *¿Cómo sabes cuándo un polígono no es un cuadrilátero?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 4, 7, 8 or 9–11

4 Summarize Approximately 5 min.

Essential Question

¿Cómo dibujas cuadriláteros?

Respuesta posible: Siempre dibujo cuatro lados, pero cambio los ángulos y el número de lados de igual longitud para cada tipo de cuadrilátero.

Math Journal

Draw a quadrilateral that is NOT a rectangle. Describe your shape, and explain why it is not a rectangle.

Describe Triangles

Instructional Time: 1 day

Common Core Standard

CC.3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a ladder category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Lesson Objective

Describe and compare triangles based on the number of sides that have equal length and by their angles.

Essential Question

¿Cómo describes triángulos con la ayuda de sus lados y ángulos?

Materials

- MathBoard
- straws
- scissors
- Math Journal
- Real World Video, Ch. 12
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to describe and compare triangles based on the number of sides and their angles. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of geometry to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre los triángulos?*
- *¿Cómo sabes si puedes hacer un triángulo con las pajillas dadas?*
- *¿Cómo usas el vocabulario matemático en tu explicación?*
- *¿Qué sucede cuando una de las pajillas tiene el doble de la longitud que las otras dos pajillas?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 5–7 or 8–11

4 Summarize Approximately 5 min.

Essential Question

¿Cómo describes triángulos con la ayuda de sus lados y ángulos?

Puedo medir los lados de los triángulos para saber qué lados, si los hay, tienen longitudes iguales. También puedo averiguar si hay un ángulo recto, 3 ángulos menores a un ángulo recto o 1 ángulo mayor que un ángulo recto para describir un triángulo.

Math Journal

Draw a triangle that has two sides of equal length and one right angle.

Problem Solving • Classify Plane Shapes

Instructional Time: 1 day

Common Core Standard

CC.3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a ladder category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Lesson Objective

Solve problems by using the strategy *draw a diagram* to classify plane shapes.

Essential Question

¿Cómo usas la estrategia de *dibujar un diagrama* para clasificar figuras planas?

Materials

- MathBoard
- Math Journal
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Unlock the Problem • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to make a Venn diagram to classify plane shapes and solve problems. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of geometry to develop sound mathematical practices by asking these questions.

- *¿Qué hiciste primero? ¿Por qué?*
- *¿Qué estrategia puedes usar para resolver este problema?*
- *¿Cómo apoya el diagrama de Venn tu trabajo?*
- *¿Qué conclusiones puedes sacar del diagrama?*

3 Practice

Share and Show Approximately 10 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

On Your Own Approximately 10 min.

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 6, 7, 8

4 Summarize Approximately 5 min.

Essential Question

¿Cómo usas la estrategia de *dibujar un diagrama* para clasificar figuras planas?

Respuesta posible: Puedo dibujar un diagrama de Venn para clasificar las figuras según las longitudes de sus lados y el número de lados. Si una figura se ajusta a ambas categorías, irá en la sección donde se sobreponen los dos círculos.

Math Journal

Draw a Venn diagram with one circle labeled *Quadrilaterals* and the other circle labeled *Polygons With More Than 3 Sides.* Draw at least 2 shapes in each section of the diagram. Explain why you drew the shapes you chose in the overlapping section.

Investigate • Relate Shapes, Fractions, and Area

Instructional Time: 1 day

Common Core Standard

CC.3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.

Also CC.3.NF.1, CC.3.NF.3d, CC.3.MD.5

Lesson Objective

Partition shapes into parts with equal areas and express the area as a unit fraction of the whole.

Essential Question

¿Cómo divides figuras en partes con áreas iguales y escribes las áreas como una fracción unitaria del todo?

Materials

- MathBoard
- pattern blocks
- color pencils
- ruler
- Math Journal
- HMH Mega Math
- *i*Tools: Geometry

1 Engage Approximately 5 min.

This activity reviews prerequisite skills, establishing a common conceptual foundation for the lesson. Use evidence of students' understanding to decide how deeply to discuss.

2 Teach and Talk Approximately 20 min.

Investigate • Activity to Build Conceptual Understanding

Remember, this is the core instruction for this lesson, in which conceptual development is key. The goal of this activity is for students to divide shapes into equal parts and express the area as a unit fraction of the whole. As students work through Unlock the Problem, gauge their level of understanding to make better decisions about how to progress through instruction.

Build on students' understanding of geometry and fractions to develop sound mathematical practices by asking these questions.

- *¿Qué recuerdas sobre el área?*
- *¿Qué recuerdas sobre fracciones?*
- *¿Cómo apoya el dibujo tu trabajo?*
- *¿Cómo sabes que la respuesta es razonable?*

3 Practice

Share and Show Approximately 20 min.

Use the checked exercises as a diagnostic assessment. If students answer either exercise incorrectly, use RtI (Response to Intervention).

Students can begin independent practice once they understand these geometric concepts. Select exercises based on students' depth of understanding. The exercises below require higher order thinking skills and critical reasoning, making them especially rich.

Exercises 11, 12

4 Summarize Approximately 5 min.

Essential Question

¿Cómo divides figuras en partes con áreas iguales y escribes las áreas como una fracción unitaria del todo?

Respuesta posible: Puedo trazar bloques de patrón y dibujar líneas que dividen la figura en partes iguales. Luego, puedo escribir el área de cada parte como fracción usando 1 como el numerador y el número de partes iguales como el denominador.

Math Journal

Trace a pattern block. Divide it into two equal parts, and write a unit fraction to describe the area of each part. Explain your work.