

Math Problem Writing

PD 301



Speak AgentSM

We speak the language of content.SM

Strategy: Student-Generated Problems

- When students create their own math problems, they connect new concepts to prior knowledge and apply both conceptual and procedural knowledge.
- The process promotes learning about math modeling such as determining information needed to solve a problem and communicating a solution path.



Math Problem Maker

Modeling Strategy





Math Problem Maker

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? Activity Help

🔊 Sound: On

🔊 Narration: Medium



Math Problem Maker

Let's Create! →

Create a math problem for your classmates to solve.
Can you earn the highest ratings?





Math Problem Maker

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? Activity Help

🔊 Sound: On

🔊 Narration: Medium

💡 Topic

💬 Ask

3

4

5

6

7



Topic

In this activity, you will create a math problem for a classmate to solve.

First, pick a math topics that you think goes with the image. There is no right or wrong answer!



proportion



scale factor



scale up



scale down



ratio





Math Problem Maker

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? Activity Help

🔊 Sound: On

🔊 Narration: Medium

💡 Topic

2

3

4

5

6

7



Topic

In this activity, you will create a math problem for a classmate to solve.

First, pick a math topics that goes with the image. Then, write the right or wrong answer!

MODEL

a real airplane and a model airplane



scale factor

scale up

scale down

ratio





Math Problem Maker

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🔊 Narration: Medium

💡 Topic

💬 Ask

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7



Topic

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proportion



scale factor



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scale down



ratio





Math Problem Maker

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Activity Help

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Narration: Medium

Topic

2

3

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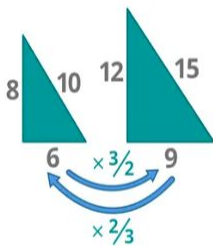
Topic

In this activity, you will create a math problem for a classmate to solve.

First, pick a math topics that you think goes with your puzzle or wrong



scale factor



the ratio of the lengths of two proportional shapes, models, or drawings

Return to Puzzle Making →



scale down



scale up



ratio



Math Problem Maker

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🔊 Sound: On

🔊 Narration: Medium

💡 Topic

💬 Ask

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7



Ask questions

Think about the image. What questions does it make you want to ask?

Remember, you chose this topic:



scale factor



Topic words to help you write

+ proportion

+ scale factor

+ scale up

+ scale down

+ ratio

1

Type your questions here

2

Type your questions here

3

Type your questions here

Questions asked ✓



Math Problem Maker

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🔊 Sound: On

🔊 Narration: Medium

💡 Topic

💬 Ask

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Ask questions

Think about the image. What questions does it make you want to ask?

Remember, you chose this topic:



scale factor



Topic words to help you write

+ proportion

+ scale factor

+ scale up

+ scale down

+ ratio

1

Are the big and small plane the same proportions?

2

How much bigger is the real plane?

3

Will the small plane scale up to be the same as the big plane?

Questions asked ✓



Math Problem Maker

← Back To Lesson

? Activity Help

🔊 Sound: On

🔊 Narration: Medium

💡 Topic

💬 Ask

👤 Select

4

5

6

7



Select your favorite question

Choose the **one question** that you will turn into your math problem about the math topic you picked earlier:

Remember, you chose this topic:



scale factor

Are the big and small plane the same proportions?

How much bigger is the real plane?

Will the small plane scale up to be the same as the big plane?



Math Problem Maker

← Back To Lesson

? Activity Help

🔊 Sound: On

🔊 Narration: Medium

💡 Topic

💬 Ask

👉 Select

🧠 Gather

5

6

7



Gather information

What information do you need in order to answer your question?

👉 Your favorite question:

Are the big and small plane the same proportions?



Topic words to help you write

+ proportion

+ scale factor

+ scale up

+ scale down

+ ratio

? Get writing help

1

What is the width, length, and height of the big plane?

2

What is the width, length, and height of the small plane?

3

Write information you want to gather.

4

Write information you want to gather.

5

Write information you want to gather.

6

Write information you want to gather.

Information gathered ✓



Math Problem Maker

← Back To Lesson

? Activity Help

🔊 Sound: On

🔊 Narration: Medium

💡 Topic

💬 Ask

👉 Select

👤 Gather

🛠️ Create

6

7



Create your problem

Write the steps to solve your problem.
The steps will be hidden from your classmate.

👉 Your favorite question:

Are the big and small plane the same proportions?

👉 Your information items:

- What is the width, length, and height of the big plane?
- What is the width, length, and height of the small plane?

Topic words to help you write

+ proportion

+ scale factor

+ scale up

+ scale down

+ ratio

? Get writing help



Your problem:

Write the puzzle you want to your classmate to solve here.

Problem created ✓



Math Problem Maker

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🔊 Narration: Medium

💡 Topic

💬 Ask

👉 Select

👤 Gather

🧩 Create

6

7



Create your problem

Write the steps to solve your problem.
The steps will be hidden from your classmate.

👉 Your favorite question:

Are the big and small plane the same proportions?

👉 Your information items:

- What is the width, length, and height of the big plane?
- What is the width, length, and height of the small plane?

Topic words to help you write

+ proportion

+ scale factor

+ scale up

+ scale down

+ ratio

? Get writing help



Your problem:

The big plane is 10 feet wide, 8 feet long, and 4 feet high.
The small plane and the big plane have a scale factor of 1:8.
How wide, long, and tall are the small plane?

Problem created ✓



Math Problem Maker

← Back To Lesson

? Activity Help

🔊 Sound: On

🔊 Narration: Medium

💡 Topic

💬 Ask

👉 Select

👥 Gather

🛠️ Create

🧩 Solve

7



Write your solution

Write the steps needed to solve your problem. Your classmate may see the steps if they ask for a hint.

🧩 Your problem:

The big plane is 10 feet wide, 8 feet long, and 4 feet high. The small plane and the big plane have a scale factor of 1:8. How wide, long, and tall are the small plane?



Topic words to help you write

+ proportion

+ scale factor

+ scale up

+ scale down

+ ratio

? Get writing help

1

Divide the width by 8.
 $10/8 = 1.25$

2

Divide the length by 8.
 $8/8 = 1$

3

Divide the height by 8.
 $4/8 = .5$

+ Add another step

Solution written ✓



Math Problem Maker

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? Activity Help

🔊 Sound: On

🔊 Narration: Medium

💡 Topic

💬 Ask

👉 Select

👥 Gather

🧩 Create

🧩 Solve

☰ Review



Review your problem

Almost there! Review your problem before you send it off! Your teacher will give it to another classmate to solve.



Your problem:

The big plane is 10 feet wide, 8 feet long, and 4 feet high. The small plane and the big plane have a scale factor of 1:8. How wide, long, and tall are the small plane?

Your solution steps:

1. Divide the width by 8. $10/8 = 1.25$
2. Divide the length by 8. $8/8 = 1$
3. Divide the height by 8. $4/8 = .5$

My Checklist

- My problem is easy to understand.
- My problem has all the information that a classmate needs to solve it.
- My problem is fun and interesting.
- I checked my answer, so I am sure it is right.

Share with teacher ↗



Math Problem Maker

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? Activity Help

🔊 Sound: On

🔊 Narration: Medium

💡 Topic

💬 Ask

👉 Select

👥 Gather

🧩 Create

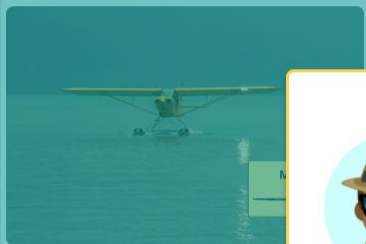
🔧 Solve

☰ Review



Review your problem

Almost there! Review your problem before you send it off! Your teacher will give it to another classmate to solve.



Your problem:

The biplane is 10 feet wide, 8 feet long, and 4 feet high. It is flying at an altitude of 1000 feet. How long will it take to fly 1000 feet?



You sent off your problem!

Nice work, Agent! Once your teacher reviews your problem the activity will be marked "done."

[Go to your Lesson →](#)

My Checklist





- My problem is easy to understand.
- My problem has all the information that a classmate needs to solve it.
- My problem is fun and interesting.
- I checked my answer, so I am sure it is right.

[Share with teacher →](#)


Student Help Window

Math Problem Maker Help



1. Choose a math topic. Press  if you need help reading or understanding a word.
2. Write at least three questions about the image.
3. Select one question to use in your math problem.
4. Gather information to answer your question. If you are not sure what to write, press  for ideas.
5. Create a problem for a classmate to answer. Press  for an example.
6. Write your solution steps. Press  for how to do this.
7. Review your problem and check all four boxes before you share it:

 **Share with teacher** 

 Click any step you've already done to redo it.



Inbox

Teacher Review Step





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Inbox

enter text here

Date	Student	Reviewer	Status	Activity	Lesson	Teacher Actions	Action
Aug 04, 2024	Grimley, Ben	None	Awaiting Approval	Math Problem Maker	CCSS Similarity L3	Approve Send Back	
Jun 20, 2024	Blackhall, Cindi	None	In Progress	Explain Your Work	PD 101 Demo: High School Examples		
Apr 23, 2024	Fisher, Mckenzie	None	Approved	Explain Your Work	CCSS Bivariate Data and Analyzing Fit L3	View in Portfolio	
Sep 27, 2023	Grimley, Ben	None	Awaiting Approval	Explain Your Work	NGSS Properties of Matter	Approve Send Back	
Oct 13, 2021	Grimley, Ben	None	Report Awaiting Corrections	Science Notebook	Science 8 Unit 09: Student-Designed Investigations		



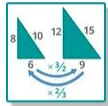
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enter text here



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Lesson:	CCSS Similarity L3
Puzzle Maker:	Ben Grimley
Puzzle Solver:	N/A
Selected Topic:	 scale factor
Question 1:	Are the big and small plane the same proportions?
Question 2:	How much bigger is the real plane?
Question 3:	Will the small plane scale up to be the same as the big plane?
Favorite Question:	Are the big and small plane the same proportions?
Gather 1:	What is the width, length, and height of the big plane?
Gather 2:	What is the width, length, and height of the small plane?
Puzzle:	The big plane is 10 feet wide, 8 feet long, and 4 feet high. The small plane and the big plane have a scale factor of 1:8. How wide, long, and tall are the small plane?
Solution 1:	Divide the width by 8. $10/8 = 1.25$
Solution 2:	Divide the length by 8. $8/8 = 1$
Solution 3:	Divide the height by 8. $4/8 = .5$



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enter text here

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Math Problem Solver

Solving Tools & Rubric





CCSS Similarity L3

Complete the activities to finish this lesson.



Word Gallery

Similarity



How is it going?

Ready to start



Read Along

Welcome to Similarity Street!



How is it going?

Ready to start



Explain Your Work

How Tall is That Tree?
(similarity)



How is it going?

Ready to start



Level Up

Similarity



How is it going?

Ready to start



Math Problem Maker

Big and Small



How is it going?

Ready to start



Math Problem Solver

A Problem for You to Solve



How is it going?

Ready to start





Math Problem Solver

Remove Highlights

← Back To Lesson

? Activity Help

🔊 Sound: On

🔊 Narration: Slow

Select Language

Math

Problem Solver

Start Solving →

Mission Control has assigned you a new math problem... Go solve it!



Math Problem Solver

Remove Highlights

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? Activity Help

🔊 Sound: On

🔊 Narration: Slow

Select Language



I have a scale factor problem for you, Dan L!

The big plane is 10 feet wide, 8 feet long, and 4 feet high.,The small plane and the big plane have a scale factor of 1:8.,How wide, long, and tall are the small plane?



+ What is your solution?

Type your answer here



📄 About scale factor

👋 Get a hint (3)

🖨️ Print the problem

🟢 Highlight Color

✓ Check My Work



Math Problem Solver

Remove Highlights

← Back To Lesson

? Activity Help

🔊 Sound: On

🔊 Narration: Slow

Select Language



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+ What is your solution?

Type your answer here



Hint Number 1

Divide the width by 8. $10/8 = 1.25$



← [Work on your solution](#)

✓ Check My Work



Math Problem Solver

Remove Highlights

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? Activity Help

🔊 Sound: On

🔊 Narration: Slow



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+ What is your solution?

The scale factor is 1:8 so I will divide everything by 8.

$$10/8 = 1 \frac{2}{8} = 1 \frac{1}{4} \text{ ft wide}$$

$$8/8 = 1 \text{ ft wide}$$

$$4/8 = 1/2 \text{ ft high}$$



Speak and Record

You can record up to **20** seconds at a time. You can make up to **10** recordings.



15



← [Work on your solution](#)

✓ [Check My Work](#)



Math Problem Solver

Remove Highlights

Back To Lesson

? Activity Help

Sound: On

Narration: Slow



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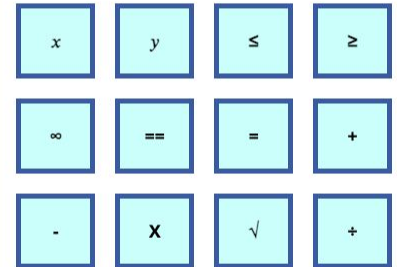
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Special Characters



← [Work on your solution](#)

✓ Check My Work



Math Problem Solver

Remove Highlights

Back To Lesson

Activity Help

Sound: On

Narration: Slow



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Word Bank



proportion



scale factor



scale up



scale down



ratio



← [Work on your solution](#)

✓ Check My Work



Math Problem Solver

Remove Highlights

← Back To Lesson

? Activity Help

🔊 Sound: On

🔊 Narration: Slow



Mission control has compared you solution to the mission file's solution.

🗨️ Your solution?

The scale factor is 1:8 so I will divide everything by 8. $10/8 = 1 \frac{2}{8} = 1 \frac{1}{4}$ ft wide
 $8/8 = 1$ ft wide $4/8 = \frac{1}{2}$ ft high

👮 Mission Control's Solution?

Divide the width by 8. $10/8 = 1.25$ ft
Divide the length by 8. $8/8 = 1$ ft
Divide the height by 8. $4/8 = .5$ ft

Is your answer the same as Mission Control's?

Yes 👍

No 🗨️

Did you solve it the same way as Mission Control?

Yes 👍

No 🗨️

Was the problem easy for you to understand?

Yes 👍

No 🗨️

Did you find the information needed to solve the problem?

Yes 👍

No 🗨️

Did you think that the problem was interesting?

Yes 👍

No 🗨️

← Keep working

Share with teacher ↻



Math Problem Solver

Remove Highlights

← Back To Lesson

? Activity Help

🔊 Sound: On

🔊 Narration: Slow



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No 🗨️

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Share with teacher ↻



Math Problem Solver

Remove Highlights

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? Activity Help

🔊 Sound: On

🔊 Narration Slow



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🏢 Mission Control's Solution?

The big plane is 10 feet wide, 8 feet long, and 4 feet high. The small plane and the big plane have a scale factor of 1:8. How wide, long, and tall are the small plane?

You solved the problem!



We've sent your solution to Speak Agent HQ.

[Go to your Lesson →](#)

Is your answer the same as Mission Control's?

Yes 👍

No 🗨️

Yes 👍

No 🗨️

Yes 👍

No 🗨️

Did you find the information needed to solve the problem?

Yes 👍

No 🗨️

Did you think that the problem was interesting?

Yes 👍

No 🗨️

← Keep working

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