

Slinky Objects

Grade 3

△ Mass and Volume

3 levels

Probing Questions

- What happens when you hang things on the hooks?
- What do you think the scale is for?

Something to Think About

Students may not have experience with Slinkys. It may be helpful to discuss what they do and, if possible, allow students to play with one.

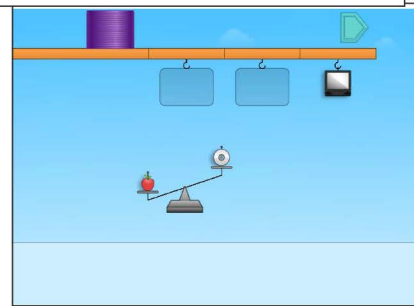
What Concepts Are Being Developed?

Students will benefit from hands-on experience with comparing the masses of different objects using a balance scale.

The scale can help compare objects that might have similar weights.



Level 3 requires students to compare three objects.



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Mass and Volume - 1



Slinky Weights

Grade 3

△ Mass and Volume

3 levels

Probing Questions

- What happens when you hang things on the hooks?
- What do you think the scale is for?

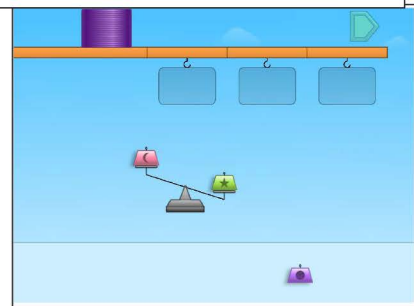
Something to Think About

Students may not have experience with Slinkys. It may be helpful to discuss what they do and, if possible, allow students to play with one.

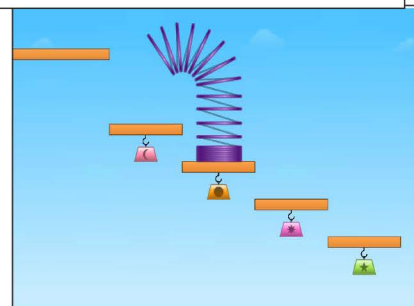
What Concepts Are Being Developed?

Students will benefit from hands-on experience with comparing the masses of different objects using a balance scale. Putting three objects in order by mass can be challenging.

Students can use the gray boxes at the bottom to work out the order of objects.



Students may need to test each weight with several other weights.



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Mass and Volume - 2



Slinky with Units

Grade 3

Mass and Volume

3 levels

Probing Questions

- What do you think the numbers mean?
- Why isn't a scale needed in Level 1?
- What do you think the scale is for?

Something to Think About

Lb seems like an odd abbreviation until you learn that libra (like the sign of the zodiac) is the Latin word for pound.

The Bigger Picture

Unlike the prior games which used a balance scale to measure mass, this game uses a spring scale and a unit of force, pounds.

Notice the scale instead of the balance used in previous games.



The objects have larger weights in the last level.



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Mass and Volume - 3



Helicopter Volume

Grade 3

Mass and Volume

4 levels

Probing Questions

- How do you know how many helicopters to choose?
- How do you see the pieces dropping into the wall?

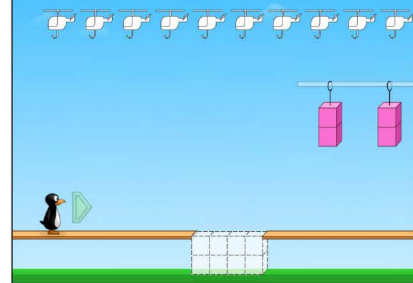
Something to Think About

Though students aren't finding the volume, they are working with finding the missing dimension of a rectangular prism. Connecting this to volume helps move this beyond a plug and chug formula.

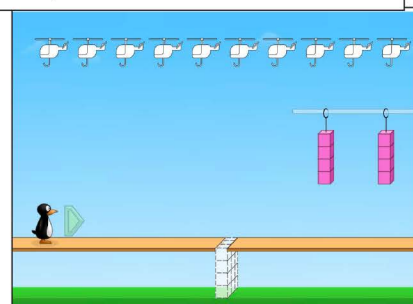
Classroom Connection

Use linking cubes to represent the hanging blocks. Ask students to create walls. Explore the different configurations that will and will not work. Look for patterns. How does the wall change when one more set of blocks is added?

The orientation of the hanging blocks varies.



Students always choose the number of helicopters.



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Mass and Volume - 6



Volume Fill

Grade 3

Mass and Volume

5 levels

Probing Questions

- How do you find how many cubes there are?
- How do you know how many cubes are in that layer?
- How are you breaking this apart in your mind?

What Strategies Are Being Used?

Students struggle when the shapes become more complicated. Ask how students are decomposing the figures and how they account for the cubes that are not visible in the drawing.

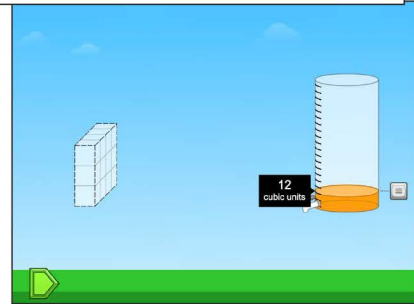
Classroom Connection

This game is a great place to really understand that volume is not just a formula. Let students build the shapes. Share strategies for finding the volume and connect counting strategies to multiplication.

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Students may benefit from building some of the shapes.



Level 4 illustrates composite volumes

