TEACH IT TO THE CLASS

CONTENT STANDARDS:
- Students will be able to explain when two or more figures are similar.
- Students will be able to set up and use proportions to solve problems involving similarity.
- Students will be able to communicate mathematical ideas.

PROCESS STANDARDS:
- Students will be able to use a model to solve problems.
- Students will be able to communicate in written and oral form.

TASK:
Your will be given a real-world similarity problem to solve. Working in groups of three or four, you must answer the problem and explain your process and answer to the class. (Teach the class)

CRITERIA:
- All group members must contribute and come to a consensus.
- You must clearly explain, showing your model, your process and answer to the class.
- Answers must be correct.

1) Duke the dog in a picture is 5 ½ inches long and 3 ¼ inches tall. The scale factor from Duke to the picture is 12 ½%. How long is Duke from his nose to the tip of his tail? How tall is Duke so a doghouse can be built?

2) Tang plans to make some repairs on the roof of a building. He needs a ladder to reach the roof, but he’s not sure how long the ladder should be. He thinks he has found a way to use similar triangles to find the height of the building. He stands 9 meters from the building and holds a 30-centimeter ruler in front of his eyes. Thee ruler is 45 centimeters from his eyes. He can just see the top and bottom of the building as he looks above and below the ruler. How can similar triangles be shown in this situation? How tall is the building?

3) In an annular eclipse, the Moon moves between the Earth and Sun, blocking part of the Sun’s light for a few minutes. The Moon does not entirely cover the Sun; instead, a ring of light appears around the
shadow of the Moon. In about 240 b.c., Aristarchus used eclipses to help correctly calculate the distances between the Earth, Moon, and Sun.

On May 10, 1994, there was an annular eclipse. Marquez’s class decided to make some measurements they could use to calculate the distance from the Earth to the Moon. They constructed a viewing box to look at the eclipse.

4) One evening there was a full moon. Suppose you went outside with a friend and used a quarter to exactly block the image of the moon. The diameter of the Moon is about 2160 miles, and the distance from the Earth to the Moon is about 238,000 miles. Use these numbers, the diameter of a quarter, and the concept of similar triangles to compute the distance you would have to hold the coin from your eye to just block the Moon.

During the eclipse, the image of the Moon almost completely covered the Sun. The Moon’s shadow and the ring of light surrounding it appeared on the bottom of the viewing box. The Moon’s image was 1 meter from the hole and had a diameter of 0.9 cm. The class read in their science book that the actual diameter of the Moon is about 3500 km. Use this data to find the distance to the Moon at the time of the eclipse.

**RUBRIC:**

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<tr>
<th>Category</th>
<th>Poor</th>
<th>Good</th>
<th>Excellent</th>
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<tbody>
<tr>
<td>All members of group contributed</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Model is shown correctly</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Process is explained clearly</td>
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<td>2</td>
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<tr>
<td>Answer is correct</td>
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**TOTAL_____/12**