

# DAY 4: The Super-Sizer

## Materials

*Copies:* 4.1 The Super-Sizer (note, page 5 is for left-handed students only)  
4.2 Solving Proportion Challenge II  
Ticket Out the Door Day 4

*Supplies:* Blank Paper (2 sheets per group)  
Scotch Tape (4 pieces per person)  
Rubber Bands- 2 per student (regular sized)  
Rulers (1 per student) OR cm grid paper  
Calculators (optional)  
Camera (Digital) for taking pictures

## Objective

Students will loop together two rubber bands to use in creating a super-sized rectangle and triangle. They will measure and compare the ratios of the side lengths to understand and apply proportions with similar figures.

## Student Talk Strategy

Numbered Heads for 4.1 conclusion

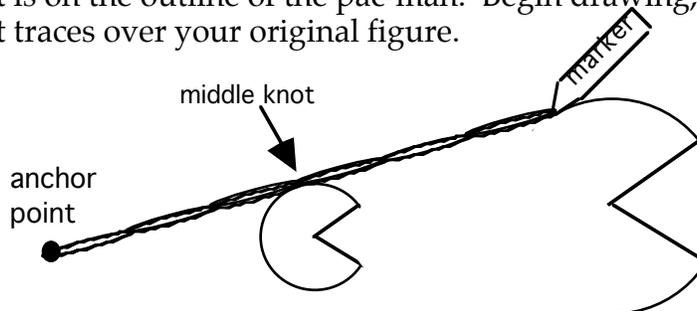
## Academic Language Use

Proportional- two lists of numbers are proportional if the numbers in one list are constant multiples of the numbers in the other list, with the same constant “of proportionality” for all the numbers. In this unit, students will come to understand this concept by doing activities (in which some are proportional and others are not) and comparing the tables and graphs to notice the constant multiplier.

## Activity Notes

### **15 minutes: Learning to use the Super-Sizer**

Model how to use the Super-sizer. Begin by drawing a figure of a pac-man near the center of the board to demonstrate how to use the super-sizer to form a similar figure (or use the Pac-man on activity sheet 4.1 and model this on the Elmo). Loop 2 rubber bands together. Mark an anchor point. To do this, have the knot of your rubber band touch the far left edge of the picture and pull the left end of the rubber band so it is tight and draw your anchor point here. Have a student hold one end of the super-sizer at the anchor point. Loop a board marker in the other end. Stretch the super-sizer until the middle knot is on the outline of the pac-man. Begin drawing, moving so that the middle knot traces over your original figure.



Put the students into groups of 2, pass out activity sheet 4.1, blank paper and rubber bands and give them each 4 minutes to super-size their Pac-man.

Note: Try this prior to your demonstration for the class, as it takes practice to use the super-sizer efficiently and to choose a good location for the anchor point.

#### **DURING THE ACTIVITY TODAY:**

Using the digital camera, take 2 pictures of each student. The student needs to stand by the wall and you need 1 picture where their HEAD fills the frame (top of head to bottom of chin) and 1 picture where their WHOLE BODY fits (top of head to toes). You will need to print these out for Day 6 (if students are absent or you run out of time, you can take the remaining pictures on Day 5).

#### **10 minutes: Students Super-Size a rectangle and triangle**

Once students are able to successfully super-size the pac-man, have them move on to super size the rectangle and triangle on page 2. Pass out an additional piece of paper for them to use. Note 1: If the students struggle with using a ruler to measure CM, pass out CM grid paper for them to draw on instead of blank paper. Note 2: if you have left-handed students, copy page 5 for them to use. Set the timer for 5 minutes so that each partner has a chance to super-size their two figures.

#### **10 minutes: Students measure their original and Super-Sized figures**

Pass out rulers to each student and have them complete the measurements as outlined in the table. Make sure to remind them to measure in CM. If your students might be unclear as to what to measure, model the first line of the chart with them. If your students are unable to measure CM accurately, encourage them to use the CM grid paper to “count” how many lines long each part is.

#### **15 minutes: Calculating Ratios and conclusions**

Give the students 5 minutes to fill in the numbers for the proportions on problems 1-3 and to see if the two fractions are equivalent. Call on a few students to share their proportions and record these on the board. Use questions to guide the students to see that the super-sized figure is about 2 times as long (by showing them that you could multiply the original figure ratio by  $\frac{2}{2}$  to get the super sized ratio. Put the students into groups of 4 (two pairs) and give the students 5 minutes to work on conclusions 1-3. Explain that you will be using numbered heads, so they need to make sure each person in their group can answer and explain the reasoning. After 5 minutes, have each group number off from 1-4 and then, at random, select a student number (1-4) and group number to have a student share their answer and reasoning. Call on 2-3 students for each question. For conclusion #3, they should come up with the numbers 12, 16 and 20.

#### **5 minutes: Solving Proportion Challenge II**

Pass out activity sheet 4.2. Explain to the students that this is a challenge to see if they can apply what they have learned so far to “solve” proportions. Allow students to work alone or with a partner to try to solve the problems. Circulate to assess and question the students and to provide them with feedback. Note: They will do this the next day as well.

**5 minutes: Ticket out the Door**

Pass out the Ticket out the Door and collect it as soon as each student finishes (so that you can discuss mistakes with students as they turn it in).