

## *Decimal Numbers*

### *Multiplication, Decimals and the Photocopier*

In this lesson, students will understand that when you multiply by a number smaller than one the product is smaller than the original number. Students will also have the grow/shrink definition of multiplication reinforced.

#### **MATERIALS:**

- rulers
- copies of worksheet (see below)
- calculators

#### **PREPARATION:**

Find a photo of someone your students think is "cool". Using a photocopier reduce the image by 50%, then by 75% and finally enlarge by 25%. Arrange all the copies on one sheet and photocopy enough copies for your class.

#### **METHOD:**

1. Distribute the sheets and explain that you used the reduce and enlarge option on the photocopier to make the different size images.
2. Tell them that on your photocopier one must enter a decimal in order to change the size of an image (e.g. .5).
3. Have them measure some part of the original image and then measure the same part on the first reduced image (e.g. length of the nose or width of an eye).
4. Now ask them to use their calculators to find which decimal you entered into the photocopier to cause the change in size. This will lead to a discussion of which operation to use (review the grow/shrink definition of multiplication i.e. multiplication can mean to make things change size).
5. After they have found the missing decimal, have them measure another part of each image and confirm their answer. Now go on to the other images and proceed in the same fashion.

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