MICROBES IN ART ACTIVITY:

For the purposes of this project, we will be keeping the use of scales simple.

To determine what size to make your microbe on your canvas, you will need the size of the microbe and the size of the canvas, then it is a simply diving the size of the canvas by the size of the microbe.

Example: Your microbe is 0.3 mm.; the size of your canvas is 450mm. How much can you increase the size of your microbe and still keep it on the canvas?

Size of canvas/ size of microbe = increased size of microbe. 450mm/0.3mm = 1500mm.

You can increase the size of your microbe by 1500mm and it will still fit on the canvas.

Now let’s try a few practice problems:

1) Your microbe is 0.05mm; the size of your canvas is 400mm. How much can you increase the size of your microbe and keep it on the canvas? 400/0.05 = 8,000.

2) You’ve increased your microbe by 100,000mm; the size of your canvas is 500mm. What is the original size of the microbe? 500/100,000 = 0.005

Directions for the art activity:

1) As a group, choose a microbe from among the microbe sorting cards. Each group must have a different microbe.

2) List the name and size of your microbe

 Microbe name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Microbe size \_\_\_\_\_\_\_\_\_\_\_\_\_\_(use height and width if given).

 Use the internet to look up the size of the microbe you are painting.

3) Each canvas is 450mm. Get one canvas per person in your group, so if there are three people in your group, get three canvases.

4) Each person in the group will paint a portion of the microbe on their canvas so that put together, you have one big picture of the microbe.

5) Add the sizes of the canvases together and determine what size you will make your microbe. Microbe must take up at least half of each canvas.

Canvas size \_\_\_\_\_\_\_\_\_ / microbe size \_\_\_\_\_\_\_\_ = upscaled microbe size \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6) Next, use the charcoal stick to lightly outline microbe features on your silk.

7) Once you are in agreement and sure of where the lines will be placed, get a bottle of resist from the teacher and place resist on the silk, following along the charcoal lines. **This step is essential to ensure your colors do not run together.**

8) The resist requires 24 hours to dry before painting.

9) Obtain a tray for your paints, a small bottle of rubbing alcohol, a small bottle of vinegar, some table salt and some rock salt, paint brushes and newspapers to place under your painting.

10) As a group, determine what colors you will need. If you need to mix colors, ensure each person has access to that color so the painting looks uniform.

11) Look at the rubric to determine the number of colors and cause and effect items (salt, rubbing alcohol, vinegar) you will need to use in order to get top grades.

12) While waiting for the resist or paint to dry, begin collecting information on your microbe.

13) Microbe information:

a) What is the specific environment my microbe lives in? Do not just say ocean, be more specific, what part of the ocean? Deep or shallow waters? Cold or warm waters? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) How does my microbe obtain nutrients? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) Is my microbe a single cell or multi-celled organism? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d) How does my microbe reproduce? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e) What role does my microbe play in the environment? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

f) What type of microbe is it? Bacteria, fungi, protist, virus? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Presentation guidelines:

You may present the material in any order. Each person in your group should present for an equal amount of time. Presentations are 3 days from now. ( An actual date should go here.)

Information you should present:

1) The name of the microbe

2) The details you collected about the microbe.

3) The painting methods you chose to represent your microbe.

4) How using scale helped you to paint the microbe.

5) How art, the use of scale and science can be used together or are related?

ENRICHMENT ACTIVITY:

Students can look up fresh water microbes and gather the same information on them as they did for the marine microbe in their project. They can list differences and likenesses between the two.