Section One: Project/Lesson Overview

Grade: 9

Subject: Math

Lesson Title: Scale Diagrams (Enlargements and Reductions)

Lesson Description:. Students will learn to determine the scale factor relating to images of bones and fossils from the internet.

Time Required: 1 x 60 minute classes

Curriculum Outcomes:

- SCO: SS4: Draw and interpret scale diagrams of 2-D shapes.

Section Two: Project/Lesson Implementation

Equipment/Materials Required: access to the internet, access to a printer, ruler, 0.5 cm grid paper (attached), 1 cm grid paper (attached)

Lesson Procedures/ Teaching Strategies:

1. Start with a picture of the protodus shark tooth from the Magnificent Rocks virtual exhibition. Ask the class questions like: How big do you think that shark is that belonged to that tooth (the image sure makes the tooth look big), How big is the tooth? (Show me with your fingers)
2. Direct their attention to the fact that the tooth is only 7mm wide. Now discuss why the image was enlarged? Was it to fool us into thinking it came from a big shark? Or to show the detail that could not be shown in a life size image?
3. Determine the scale factor (width of scaled image/width of actual specimen) of the image (answers will vary depending on the size of your computer screen or smartboard or projection screen).
4. As a class you may want to look at a few more images just to show the students how to navigate the website.

Suggested Assessment Strategies:

1. Have students explore the museum website searching for more images that have been scaled. Students should pick two images (one enlargement and one reduction). Students should print their two selections and determine the scale factor for each. Students should include a brief write up of why each image was scaled.

2. On 1-cm grid paper have students draw their own life sized fossils (they can use the museum website for inspiration). Students create a reduction by transferring their fossil diagrams to 0.5-cm grid paper. They should include a scale factor on their reduction. This process could also work in reverse if a student wanted to draw a smaller fossil and create an enlargement starting with the 0.5-cm grid paper. You may want to mention to the students that in order to make an accurate reduction they must take their time and copy one square at a time from the grid. It helps if they can see an example of a good reduction and a poor reduction. These reductions can be given a mark out of 10. Two marks for the proper scale factor and eight marks for the accuracy of the reproduction.

Section Three: Project/Lesson Resources

Supplementary Resources:
www.nbm-mnb.ca/magnificentrocks

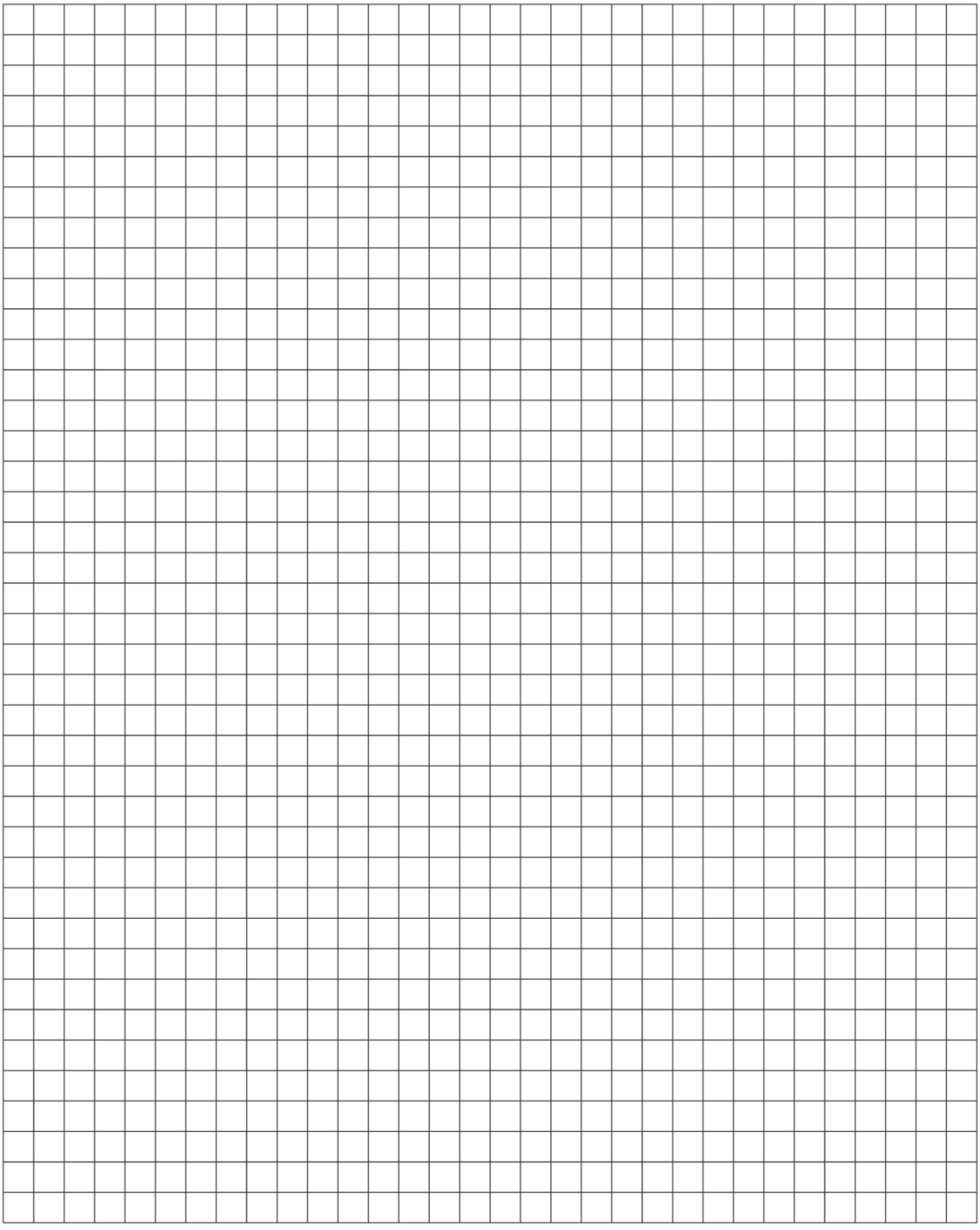
Disclaimer: The recommended web-resources included here have been scrutinized for their grade and age appropriateness; however, contents on links on the Internet change continuously. It is advisable that teachers preview all links before recommending them to students.

Section Four: Additional Information

Students put a lot more time and energy into their assignments when they were shown examples of strong and weak work.

Credits: Angus Gourley, Harrison Trimble High School, Moncton, New Brunswick

0.5 cm Grid Paper



1 cm Grid Paper