

## Student Sheet

Name \_\_\_\_\_

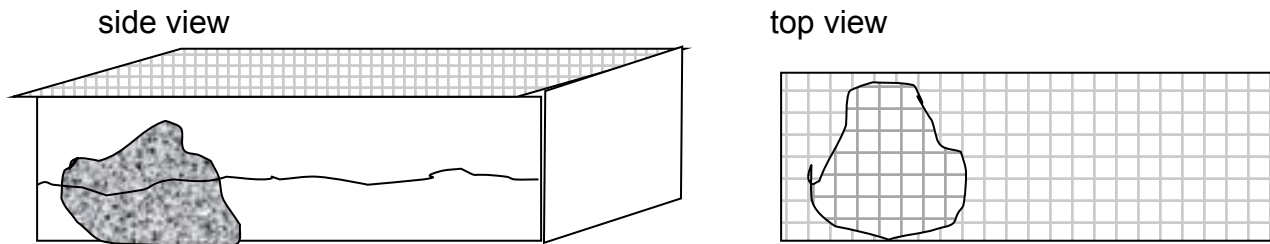
### Title: Sea Level Changes

**Introduction:** A great deal of evidence can be found on the coastlines of continents that supports the idea that the level of the oceans has changed over time. Coastlines underwater today have old river beds, wave terraces and even land plant and animal remains on them. Land that is above water today has evidence of once being underwater. We know that plate tectonics creates sinking and rising landforms but evidence shows that shifts in the water cycle over time add or subtract water to the oceans of the world. In this activity you will investigate a model of changing sea levels and create a graph to summarize your data.

**Materials:** transparent plastic box, rock, 250 mL beaker, water, marker, ruler, bucket, tray or sink to add or subtract water into. Grid transparency

#### Procedures:

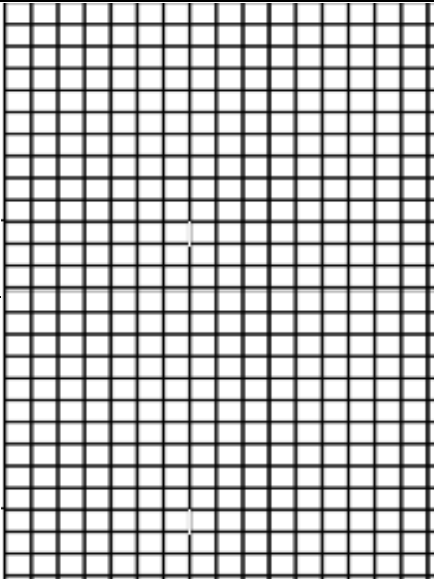
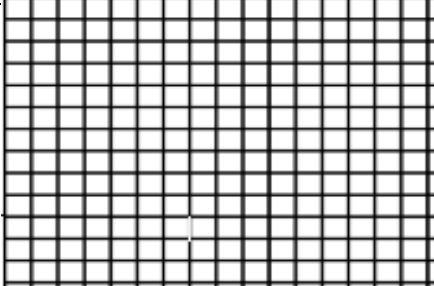
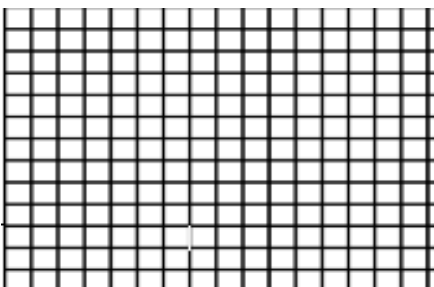
1. With your class, brainstorm some reasons why the oceans would rise and fall.
2. Working with your group, get your materials and add enough water to the tray to cover the bottom part of the rock:

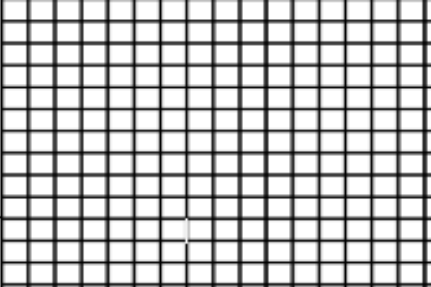
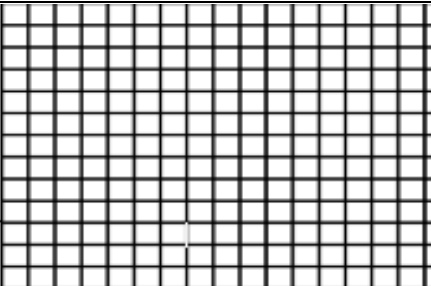
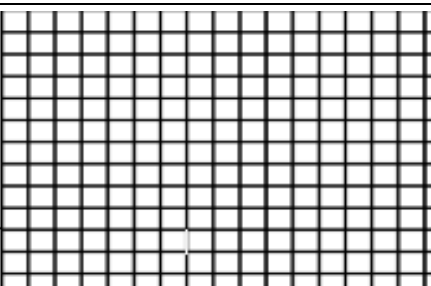
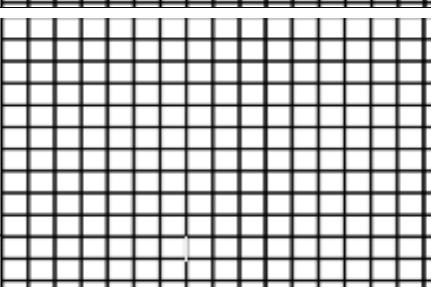


3. Make a mark on the side the box on the highest point where the water touches the rock. This is sea level today. Write it down on your data as "0". Lay the graph transparency over the top of the tray and count the number of squares it takes to cover the rock. This is the rock's surface area.
4. Imagine a change in the water cycle and describe it in your data. You may add or subtract water each time. Each change will stand for 10,000 years and you will chart 60,000 years. Be sure and describe the reasons for the change in terms of the water cycle. For example: Higher temperatures cause increased evaporation of water, lowering sea level.

5. Make another mark on the side of the container where the water now meets the rock and measure with your ruler the distance. To describe a fall in sea level, use a minus number. You will need to measure in millimeters.
6. Look at the rock from the top and draw it as accurately as possible. Count the number of squares it takes to cover the rock to find its area.
7. Repeat 5 more times and record on the data table.

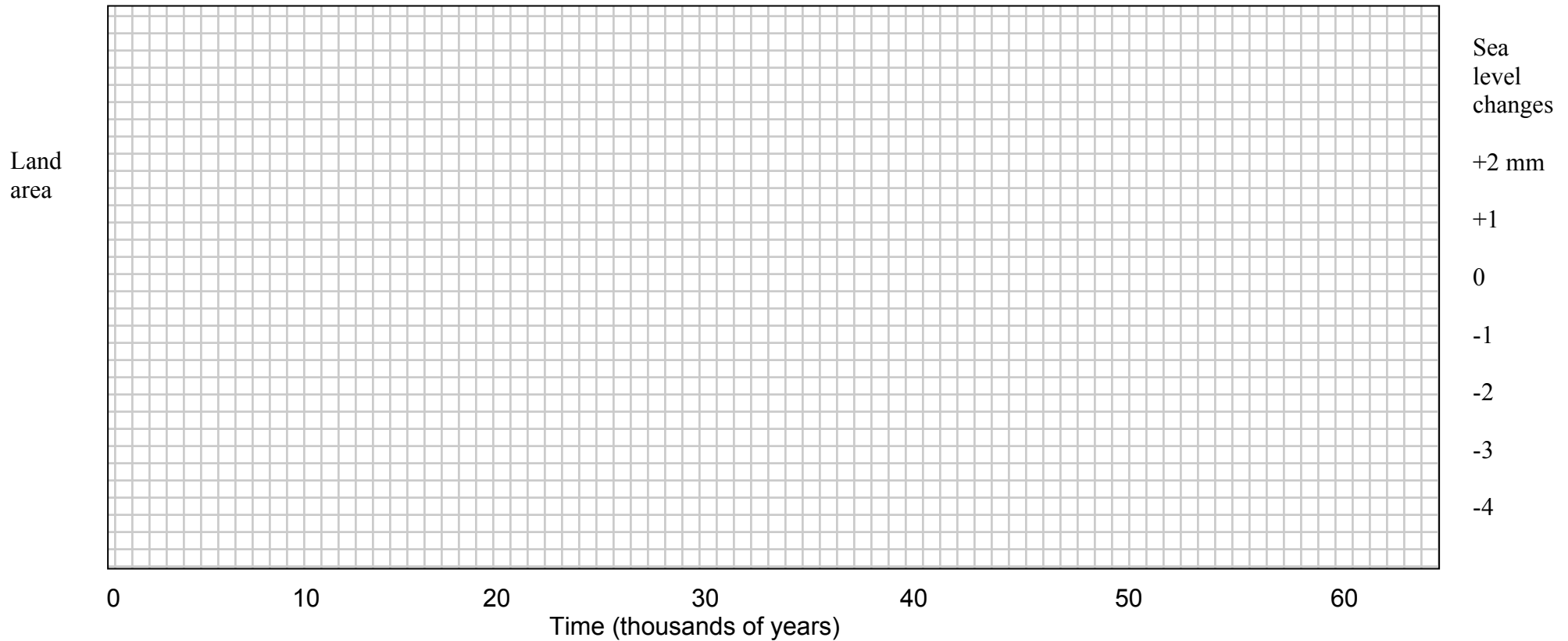
**Data:**

<b>Years Ago</b>	<b>Description of Water Cycle</b>	<b>Height of ocean (+ or -)</b>	<b>Area of land (#of squares)</b>	<b>Drawing of rock from the top</b>
<b>0</b>		<b>0</b>		
<b>10,000</b>				
<b>20,000</b>				

<b>30,000</b>				
<b>40,000</b>				
<b>50,000</b>				
<b>60,000</b>				

### Analysis:

Graph of sea level change verses land surface area:



1. What relationship does sea level have to land surface area?
2. What affect would rising sea levels have on people living near the sea?
3. What do you notice about the location of the largest cities in the world and the ocean? (look at a map if you need to)

