**Glacier Research Instructions**

**Researching Your Glacier**

You will be exploring how glaciers respond to climate change by building a model of a glacier and observing how fast it melts. Each group in the class will have a different type of glacier, so it will help us figure out which glaciers are in more danger of melting because of climate change.

You will build your glacier by freezing a block of ice in a size that represents a real glacier, and then placing it in a situation that resembles the real glacier’s location on Earth. You will then observe how quickly your glacier melts compared to other people’s.

To carry out your experiment, you will need some information about your glacier. Answer the questions below by researching your glacier on the internet and/or an information sheet. Google “glaciers online” for a good place to start.

In the next lesson, you will have to give a 5-minute presentation of your information to the rest of the class, so prepare the presentation while you do the research!

|  |
| --- |
| **Name of Glacier: (circle yours)** |
| West Antarctic Ice Sheet  Larsen Ice Shelf  Greenland Ice Sheet  Colombia Glacier (Alaska)  Arolla Glacier (Switzerland)  Furtwängler Glacier (Mt. Kilimanjaro, Tanzania)  Baby Glacier (Axel Heiberg Island, Nunavut, Canada) |

Tick off these items when completed:

[ ] Basic glacier information:

|  |  |
| --- | --- |
| **Name of Glacier:** | **Type of Glacier:** |
|  |  |

[ ] Find a map of where your glacier is. If you can’t find the glacier itself, try searching for the region instead. Your glacier may be too tiny to find on a map. Put the map into your presentation.

[ ] Is your glacier in a country with a large population? Circle one: YES NO

Describe approximately how many people live near your glacier:

[ ] Find several pictures of your glacier to share with the class. (*Hint: to save yourself time, do this last; you may come across interesting pictures as you research the rest of the information.)*

[ ] Is your glacier in trouble from climate change? Fill in the tables below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Area (km2)** | **Circle One:** | | |
| Small | Medium | Large |
| Less than 10 km2 | 11 – 1,000 km2 | More than 1,000 km2 |
| Vulnerability Points | 10 | 5 | 1 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Thickness (m)** | **Circle One:** | | |
| Thin | Medium | Thick |
| Less than 100m | 100 – 1000 m | More than 1000 m |
| Vulnerability Points | 10 | 5 | 1 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Latitude (o)** | **Circle One:** | | |
| Polar | Mid-Latitudes | Tropical |
| Over 66o  N or S | 30 – 66o  N or S | Less than 30o N or S |
| Vulnerability Points | 1 | 5 | 10 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Altitude (m)** | **Circle One:** | | |
| Low | Medium | High |
| <2,500m | 2,500-4,000m | More than 4.000m |
| Vulnerability Points | 10 | 5 | 1 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Any Water Nearby (Continentality)?** | **Circle One:** | | |
| Not much | Some | A lot |
| No sea nearby; maybe the meltwater makes a stream | It flows into the sea but most of it is on dry land | Large areas stick out into the sea |
| Vulnerability Points | 1 | 5 | 10 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Vulnerability Score**  **(Add up the scores which you have given)** | **Circle One:** | | |
| Extremely Vulnerable | Vulnerable | Doing OK so far |
| Above 30 | 20 - 30 | Less than 20 |

|  |
| --- |
| **Prediction: How will climate change affect your glacier compared to other glaciers? Why?** |
|  |
|

Now examine the materials available to create your glacier. Next to each category, explain what you will choose to make your glacier as realistic as possible:

|  |  |
| --- | --- |
| **Factor** | **Which materials:** |
| Size: |  |
| Latitude: |  |
| Nearness to water: |  |

What observations will you make so your experiment is accurate? Tick any that could apply to your glacier (not all glaciers will need all of these observations):

[ ] How its thickness changes (in centimetres)

[ ] How its area changes (measuring length or width in centimetres)

[ ] How “sea level” changes if it is surrounded by water (change in depth in centimetres)

[ ] Change in appearance: quick sketch of size/shape

**Now go and make your glacier! It will need to freeze, so get ready to make your observations in your next lesson!**

**Note: If you line your container with cling film before pouring the water in, then the ice is easier to get out.**