**Science Olympiad**

**2012 Camas High School Invitational**

**Dynamic Planet**

**Key**

**Name the type of glacier shown in each picture:**

1. **This glacier can be classified as two types, name each one:**

**\_\_\_\_Piedmont\_\_\_\_ & \_\_\_\_\_Tidewater\_\_\_\_\_\_\_\_**

1. **This series of photos shows a glacier over 30 years. What type of glacier is this? \_\_\_\_\_\_\_\_\_\_\_\_\_Retreating\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
2. **What type of glacier is this? \_\_\_\_\_\_\_\_\_\_Cirque\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
3. **What type of glacier is this? \_\_\_\_\_\_\_\_\_\_\_\_\_Hanging\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
4. **This is one of the only land masses that has these: \_\_\_\_\_Ice Sheets\_\_\_\_\_\_**
5. **This is what type of glacier? \_\_\_\_\_\_\_\_Ice Shelf\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
6. **This is what type if glacier? \_\_\_\_\_\_Valley\_\_\_\_\_\_\_\_\_\_\_\_**

**Name the glacier feature in each picture:**

1. **This is what glacier feature? \_\_\_\_\_\_\_\_\_\_Terminus\_\_\_\_\_\_\_\_\_\_**
2. **This is what glacier feature? \_\_\_\_\_\_\_Ice Cave\_\_\_\_\_\_\_\_\_**
3. **This climber is currently in what glacier feature? \_\_\_Crevasse\_\_\_\_\_\_**
4. **This is what glacial feature? \_\_\_\_\_\_Ogives\_\_\_\_\_\_\_\_\_\_**
5. **This image illustrates the formation of what glacial feature? \_\_Medial Moraine\_\_\_\_\_\_\_\_\_**
6. **The sides of this glacier show what glacial feature? \_\_\_\_\_Lateral Moraine\_\_\_\_\_\_\_\_**
7. **This is what glacial landform? \_\_\_\_\_\_\_Erratic\_\_\_\_\_\_\_\_\_\_**
8. **This is what glacial landform? \_\_\_\_\_\_Arête\_\_\_\_\_\_\_\_**
9. **Name the glacial feature as well as this famous mountain: \_\_\_\_\_\_Horn & Matterhorn\_\_\_\_\_\_\_**
10. **Name this glacial feature: \_\_\_\_\_\_\_\_Drumlin\_\_\_\_\_\_\_\_\_\_\_\_\_**
11. **Name this glacial feature: \_\_\_\_\_\_\_\_\_\_Trough\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
12. **Name each of the glacial features on this diagram:**

**A: Hanging Valley**

**B: Arête**

**C: Horn**

**D: Tarn**

**E: Pater Noster Lakes**

**F: Cirques**

**G: Glacial Trough**

**Name this glacial feature: \_\_\_\_\_\_\_Tarn\_\_\_\_\_\_\_\_\_\_**

**Name this glacial feature: \_\_\_\_\_\_\_\_\_Kettle Lake\_\_\_\_\_\_\_\_\_\_**

**Name the glacial feature in the center of this picture: \_\_\_\_\_\_Kame\_\_\_\_\_**

**Answer each question directly on this test:**

1. **The degree of ellipticity of Earth’s orbit around the sun is called:**
2. **Precession**
3. **Eccentricity**
4. **Ellipticality**
5. **Tilt**
6. **If a glacier is moving quickly over a short period of time then it is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ glacier**
7. **Rock**
8. **Valley**
9. **Falling**
10. **Surging**
11. **What feature forms when two glaciers merge together?**
12. **Crevasse**
13. **Horns**
14. **Medial Moraine**
15. **Arêtes**
16. **Glaciers contain how much of the Earth’s freshwater?**
17. **30%**
18. **36%**
19. **25%**
20. **33%**

**Fill in the blank space with the correct answer**

1. **In the \_\_\_\_zone of accumulation\_\_\_\_ snowfall is occurring all year round.**
2. **In the \_\_\_\_\_zone of ablation\_\_\_\_ snowfall rarely occurs.**
3. **The \_\_\_\_\_\_\_Snow line\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ separates the answer to question 19 and the answer to question 20.**
4. **All the material dropped by a glacier is called \_\_\_\_\_drift\_\_\_\_**
5. **Glaciers erode the landscape by \_\_\_abrasion\_\_ & \_\_plucking\_\_**
6. **The stages from snow to ice are:**

**Snow**

**\_\_\_\_Granular ice\_\_\_\_\_\_**

**\_\_\_\_Firn\_\_\_\_\_\_**

**Glacial Ice**

1. **The present epoch we are in now is \_\_Holocene\_\_ and the one before the present epoch is the \_\_\_Pleistocene\_\_\_ epoch.**
2. **In the epoch that lasted from the beginning of the Quarternary Period to the end of the last glaciation there were 4 different major ice ages. Name them: \_\_\_\_\_\_\_\_\_\_Nebraskan\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_Kansan\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_Illinoian\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, & \_\_\_\_\_\_\_\_\_Wisconsin\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
3. **Concerning the previous question, the oldest of these ice ages was the \_\_\_\_\_\_\_\_Nebraskan\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ice age and the latest one was the \_\_\_\_\_\_\_\_Wisconsin\_\_\_\_\_\_\_\_\_\_\_\_\_ ice age.**
4. **The snow line at the equator is approximately \_\_5,000\_\_ meters**

**Match each of these glacial features to the type of glacier that forms it:**

1. **Arêtes: \_\_\_B\_\_\_**
2. **Truncated Spurs: \_\_\_B\_\_\_**
3. **Continental Glaciers**
4. **Valley Glaciers**
5. **Both Valley and Glaciers**
6. **Kettles: \_\_\_A\_\_\_**
7. **Eskers: \_\_\_A\_\_\_**
8. **Drumlins: \_\_A\_\_\_\_**
9. **Kames: \_\_\_A\_\_\_**
10. **Cirques: \_\_\_B\_\_\_**
11. **Horns: \_\_B\_\_\_\_**
12. **Hanging Valleys: \_\_\_B\_\_\_**
13. **Glacial Trough: \_\_\_B\_\_\_**



C

B

Topographic Map

A

**Answer the following questions:**

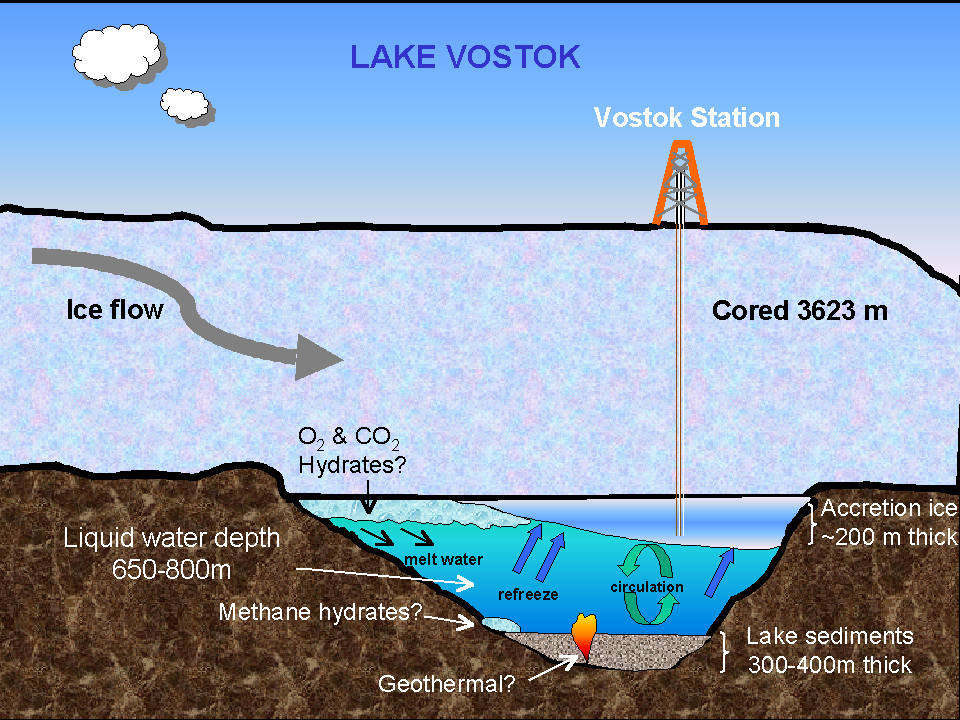
1. **Referring to the Topographic Map, what type of glacier is the Thompson glacier? \_\_\_\_\_\_\_\_\_\_\_\_Valley Glacier\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
2. **On the topographic map there is a circle with a letter A next to it. What glacial feature is in this circle? \_\_\_\_\_\_\_\_\_\_\_ Arêtes\_\_\_\_\_\_\_\_\_**
3. **On the topographic map there is a circle with a letter B next to it. What glacial feature is in this circle? \_\_\_\_\_\_\_Cirque\_\_\_\_\_\_\_\_\_\_**
4. **When the Wreck Glacier and the Thompson Glacier meet what will be formed in the middle? \_\_\_\_\_\_\_\_\_Medial Moraine\_\_\_\_\_\_\_\_\_\_\_\_\_**
5. **What is the contour interval of this topographic map? \_\_\_\_25\_\_\_\_ feet**
6. **On the topographic map there is a circle with a letter C next to it. What type of glacier is in this circle? \_\_\_\_\_Hanging Glacier (Ice Apron)\_\_\_\_\_\_\_**

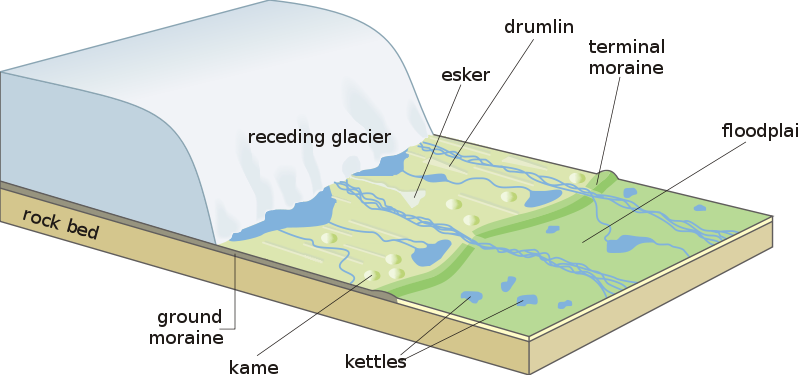


B

A

1. **Where is this famous mountain located? \_\_\_\_\_\_\_\_\_Border of Switzerland and Italy or Western Alps\_\_\_\_\_\_\_\_\_**
2. **On this topographic map there is a circle with a letter A next to it. What glacier feature is in this circle? \_\_\_\_\_Tarn\_\_\_\_\_\_\_**
3. **What is the glacier feature in circle B? \_\_\_\_Horn\_\_\_\_**
4. **What is this diagram of? \_\_\_\_\_\_\_Lake Vostok\_\_\_\_\_\_\_\_**





G

F

E

D

C

B

A

1. **Identify each of the glacial features in the above diagram.**

**A: Esker**

**B: Drumlin**

**C: Terminal Moraine**

**D: Floodplain  
E: Ground Moraine**

**F:** **Kame**

**G:** **Kettles**