Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_ Block \_\_\_\_\_\_\_\_\_\_\_\_\_\_

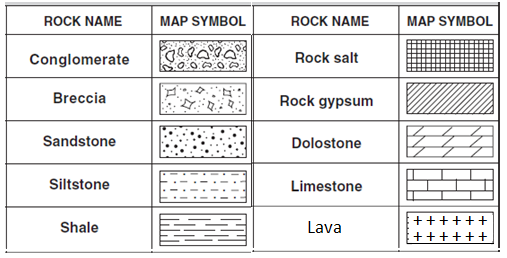
**Stratigraphy Project**

**Stratigraphy** is the branch of geology that studies rock layers and layering. Nicholas Steno, “The Father of Stratigraphy” suggested that geology is not totally chaotic but instead preserves a chronological record of Earth’s history and past life in its layers. With Steno’s contributions we now have the following laws of stratigraphy:

* **Law of Superposition** – In undisturbed rock layers, the oldest layer lies at the bottom and the youngest layer at the top.
* **Law of Cross-Cutting** – An igneous intrusion (lava) that cuts through existing rock is always younger than that disturbed rock.
* Image result for wiggly line**Law of Unconformity** – A surface that has a significant gap, layers missing, from its rock record due to erosion or non-deposition. ( )
  + **Disconformity** – An eroded surface between sedimentary layers that are parallel to each other.
  + **Angular Unconformity** – Younger strata overlie an erosional surface on tilted or folded rock layers.
  + **Nonconformity** – When igneous rocks are eroded and covered by younger sedimentary or volcanic rock.

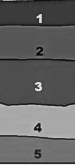
**Procedure:**

1. Draw and create as many cross-sections as needed to determine your final project grade (**Maximum = 260 pts**)
2. **Identify each diagram**.
3. **Create a key** (**10 pts**) to identify each rock type.
   1. Each rock type should also have its own color.
4. **Use a ruler** to measure each layer accurately.
5. **Label and identify each of the parts** of the diagram correct:
   1. Oldest layer/youngest layer
   2. Disconformity/Nonconformity/Unconformity
   3. Angular Unconformity
   4. Foot Wall/Hanging Wall
   5. Fault Plane
   6. Igneous Intrusion
   7. Rock Layer Depths

**Rock Types**:

**Cross-Sections**

1. **Simple Cross-Section (10 pts)**



**Bottom** 2 cm of sandstone

4 cm of dolostone

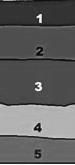
6 cm of limestone

2 cm of conglomerate

5 cm of silt stone

**top** 3 cm of shale

1. **Simple Cross-Section (20 pts)**

**Bottom** 6 cm of dolostone

4 cm of limestone

**An igneous intrusion**

2 cm of conglomerate

4 cm of shale

**An igneous intrusion**

6 cm of sandstone

**An igneous intrusion**

4 cm of Breccia

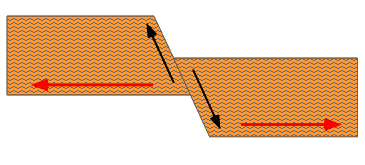
**top** 2 cm of silt stone

1. **Normal Fault (25 pts)**

* **The Foot Wall**

**Bottom** 2 cm of silt stone

4 cm of conglomerate

 4 cm of limestone

2 cm of shale

**Top** 4 cm of dolostone

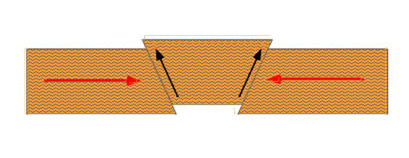
* **The Hanging Wall**

**Bottom** 4 cm of limestone

2 cm of shale

**Top** 4 cm of dolostone

1. **A Graben (35 pts)**

* **Each Foot Wall**

**Bottom** 2 cm of sandstone

4 cm of conglomerate

6 cm of dolostone

**Top** 2 cm of limestone

* **The Hanging Wall**

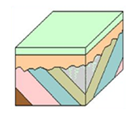
**Bottom** 1 cm of conglomerate

6 cm of dolostone

**Top** 2 cm of limestone

1. **Angular Unconformity followed by a Simple Cross-Section (30 pts)**

* **Angular Unconformity – 16 cm in width**

**Bottom** 4 cm shale

4 cm rock salt

4 cm conglomerate

**Top** 4 cm rock gypsum

* **Simple Cross-Section**

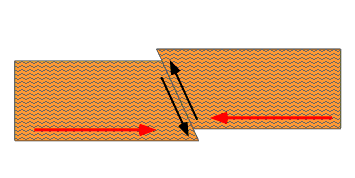
**Bottom** 2 cm of conglomerate

**Top** 4 cm of dolostone

1. **Reverse Fault (25 pts)**

* **The Hanging Wall**

**Bottom** 3 cm of shale

3 cm of conglomerate

3 cm of sandstone

3 cm of rock salt

**Top** 3 cm of dolostone

* **The Foot Wall**

**Bottom** 3 cm of conglomerate

**A Disconformity**

3 cm of rock salt

**Top** 3 cm of dolostone

1. **Angular Unconformity – Simple Cross-Section (50 pts)**

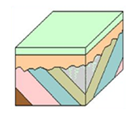
* **Angular Unconformity – 21 cm in width**

**Bottom** 3 cm of shale

3 cm of rock gypsum

3 cm of limestone

3 cm of sandstone

 3 cm of breccia

3 cm of shale

**Top** 3 cm of sandstone

* **Simple Cross-Section**

**Bottom** **An igneous intrusion**

4 cm of limestone

6 cm of shale

2 cm of breccia

4 cm of sandstone

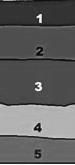
**An igneous intrusion**

2 cm of conglomerate

2 cm of sandstone

**Top** 2 cm of limestone

1. **Simple Cross-Section (15 pts)**

**Bottom** 4 cm of limestone

6 cm of sandstone

2 cm of conglomerate

**A disconformity**

4 cm of limestone

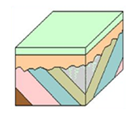
2 cm of shale

**Top** 2 cm of breccia

1. **Simple Cross-Section (40 pts)**

**Bottom** 2 cm of **nonconformity – igneous**

2 cm of sandstone

 2 cm of conglomerate

2 cm of sandstone

2 cm of limestone

A 10 cm wide **angular unconformity** (2 cm wide each) of:

* + - * Conglomerate (oldest), sandstone, breccia,

shale, and limestone (youngest)

4 cm of rock gypsum

2 cm of shale

2 cm of dolostone

2 cm of limestone

**Top An igneous intrusion**