Every Rock Has a Story - Igneous Rocks

- They start out as molten rock under the Earth.
- Magma inside the volcano takes 10,000 years to cool.
- Slow cooling magma causes minerals to crystallize.
- The longer the cooling, the bigger the minerals become.
- During long cooling, minerals attract each other and get bigger.
- Lighter weight lava flows up.
- Heavier weight lava flows down.
- Gas bubbles in lava cause holes to form.
- Fast cooling lava turns glassy.

Pumice
- Holes
- No Crystals
- Soft
- Light weight
- Floats
- Foamy Appearance
- Gray/Brown

Scoria
- Light weight
- Doesn't Float
- Holes
- Few crystals
- Foamy Appearance
- Soft
- Red violet

Granite
- Large Crystals
- Slow Cooling
- 1,000 years
- Soft
- See the minerals
- Mica - Feldspar
- Quartz

Basalt
- Heavy
- Metallic particles
- Hard
- Some Crystals
- Gray/Black
- Dull

Obsidian
- No crystals
- No Holes
- Sharp
- Hard
- Black
Every Rock Has a Story - Sedimentary Rocks

- Sedimentary rocks start at the top of mountains.
- Rocks get broken down by weathering.
- They break down into pebbles, sand, silt, and clay.
- During the spring, streams bring these sediments down into oceans and lakes.
- Heavier sediments drop off first as the slope gets less.
- As the slope gets less and less other sediments drop off in order of their weights: sand, silt, and clay.
- Water pressure packs the sediments tightly.

- Pressure of the water packs the sediments together.
- Layers of sediments are formed year after year.

**Conglomerate**
- Sand and small pebbles
- Sand cements the small pebbles together
- Can be broken easily
- No Sparkles

**Sandstone**
- Sand sediments
- Small sparkles
- Can be broken easily

**Shale**
- Fine grains of silt/clay
- Grains not seen
- No sparkles
- Soft
- Can be broken
- Some layers seen

**Limestone**
- Silt/clay mixed with organic things: shells, bones, plants, dead animals
- Pasty looking
- Could see fossils
Every Rock Has a Story - Metamorphic Rocks

- Morph means change
- One rock turns into another type of rock
- Heat from magma radiates (travels) through rock and heats it up and morphs it into another rock.
- Slow cooling of these rocks cause large crystal growth to make them sparkle.

- Granite
  - Heat
  - Large Crystals
  - See minerals

- Gneiss
  - Heat
  - Large Crystals
  - Banded Layers

- Magma Chamber

- Meta-conglomerate
  - Heat
  - Hard
  - Tightly packed

- Sandstone
  - Heat
  - Layers
  - Flat

- Shale
  - Heat
  - Somewhat shiny

- Quartzite
  - Heat
  - Hard
  - Large Sparkles

- Slate
  - Heat
  - Hard
  - Layers
  - Flat
  - Somewhat shiny

- Schist
  - Heat
  - Sparkly
  - Flat
  - Brittle

- Limestone

- Marble
  - Large Sparkles
  - Creamy
  - Hard