

# Warm-up Week 13 Day 2

1. **Describe** Convection in your own words.
2. **How** is the crust destroyed at convergent boundaries?
3. **How** does the ocean floor grow bigger?

# Warm-up Week 13 Day 2

1. Describe Convection in your own words.

Which type of plate boundary does each scenario represent?

2. Nick **punches** Mr. J in the face.
3. You cut your finger and a **scab forms**.
4. **Handshake** at the end of a soccer game.

# **“Testing Plate Tectonics”**

**9.4 & 9.5**

# Paleomagnetism

A bar magnet with a red left pole and a blue right pole is shown. Iron filings are attracted to the poles, forming a dense cloud. Several small compasses are placed around the magnet, with their needles pointing towards the poles, illustrating the magnetic field lines.

“Paleo” =  
ancient  
“Magne” =  
stone

“Net” =  
collection  
“ism” =  
process

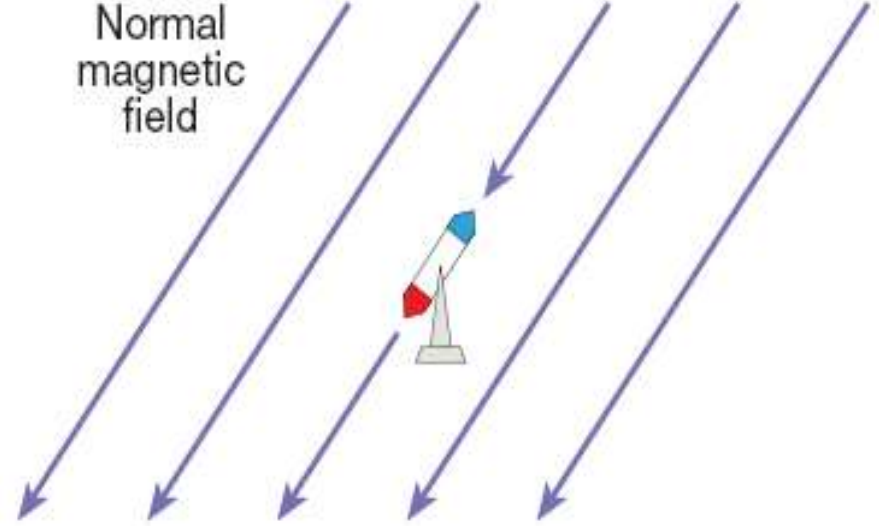
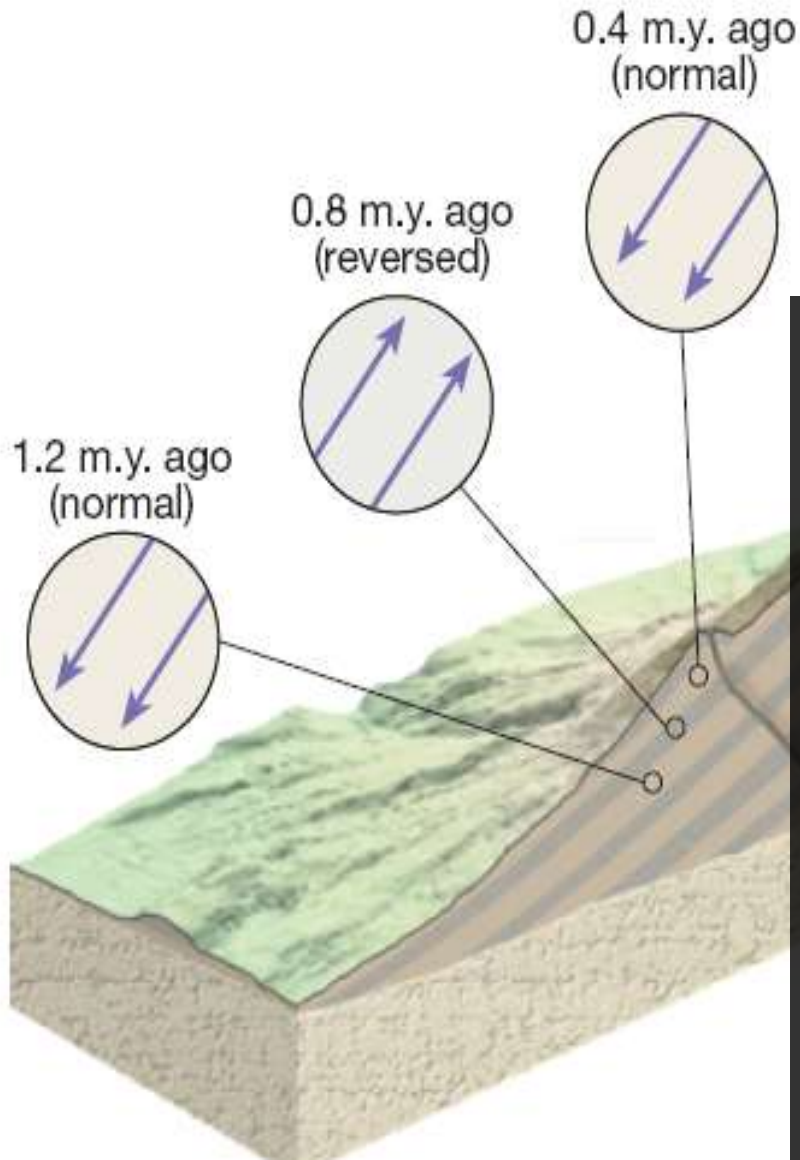
- Magnetic field.
- Study of changes in earth’s magnetic field

# Heat & Magnets



- **Too hot!**
  - ↓ magnetism.
- **Cool** again...
  - ↑ magnetism.
  - Points toward poles.
  - Compass!

# Polarity?!



## How magnetic?

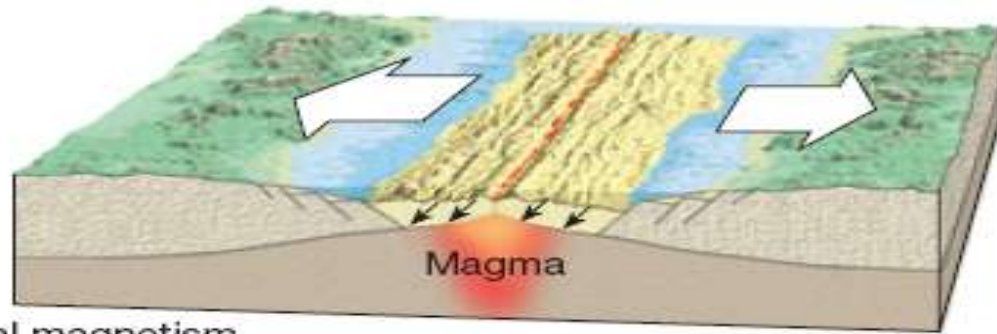
- **Normal polarity**
  - Same direction as today
- **Reverse polarity**
  - Opposite direction

# Seafloor spreading

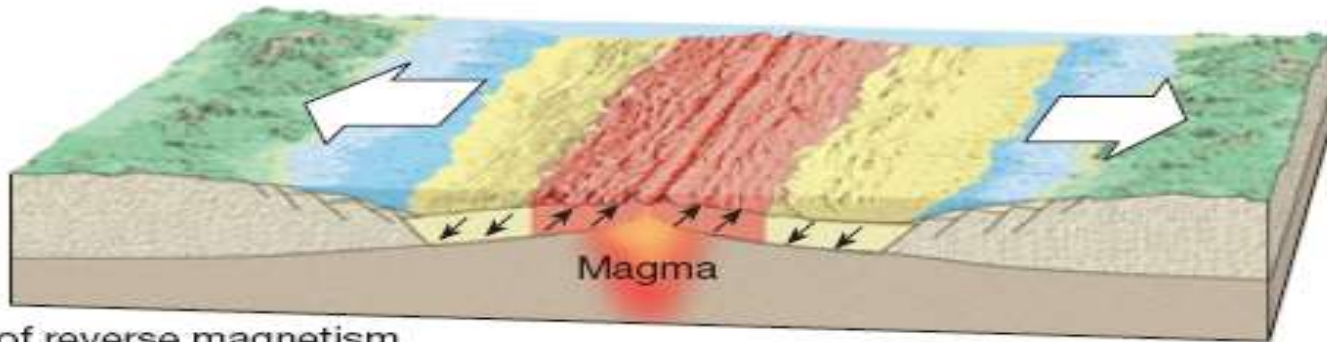
1. Youngest → ridge.
2. Oldest → farther.



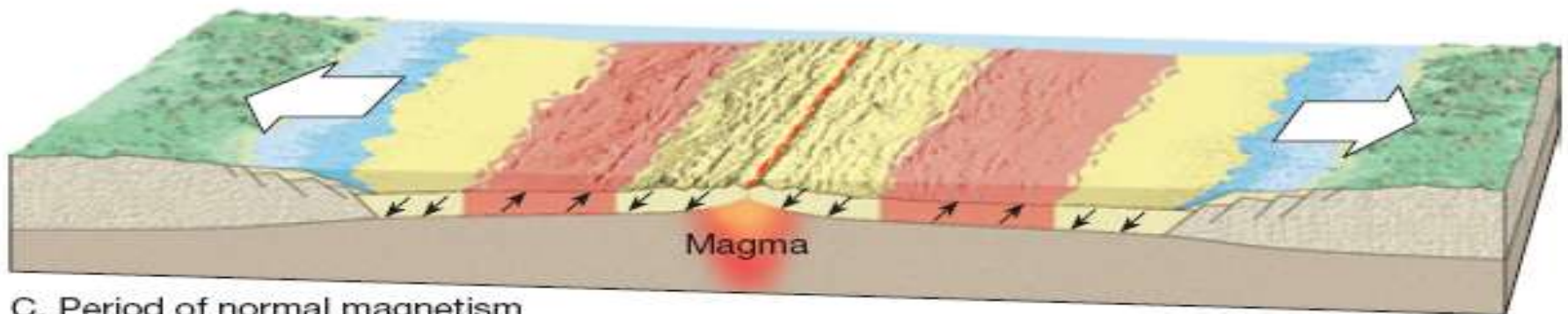
# Magnetic Reversals in Seafloor Spreading



A. Period of normal magnetism



B. Period of reverse magnetism



C. Period of normal magnetism

# Hot Spots.

Kauai  
3.8—5.6

Oahu  
2.2—3.3

Molokai  
1.3—1.8

Maui  
less than 1.0

Hawaii  
0.7 to present

Direction of  
plate motion

Hot spot

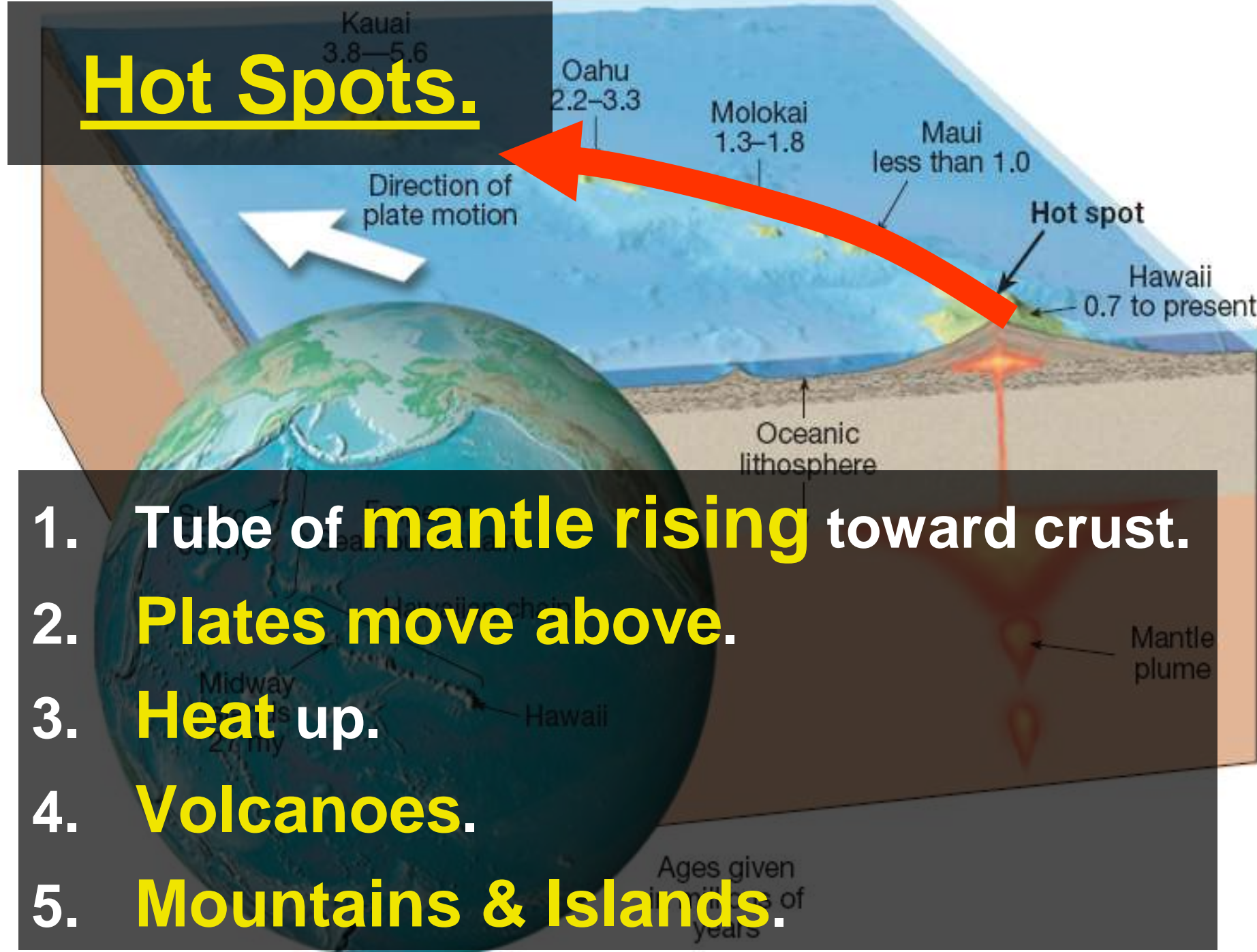
Oceanic  
lithosphere

Mantle  
plume

1. Tube of **mantle rising** toward crust.
2. **Plates** move above.
3. **Heat** up.
4. **Volcanoes.**
5. **Mountains & Islands.**

Ages given  
in millions of  
years

Midway  
27 my  
Hawaii



# Recall: Convection...

1. Cycle of heat
2. Unequal temp<sup>o</sup>
3. Swirls liquid mantle
4. Plates float on top.
5. Plate move with “current”

**Convection causes plates to move.**

**Q: What makes things move?**

**Pushes!**

**Pulls!**

**“FORCES”**

# Q: What makes **plates** move?

## 1. Ridge-Push

- **Divergent** boundary
- Creation of **Ocean ridge**
- **“Pushes” crust** out of the way
- **Caused by gravity!**

## 2. Slab-Pull

- **Convergent** boundary
- **Subduction**
- **“Pulls” crust** along with it!