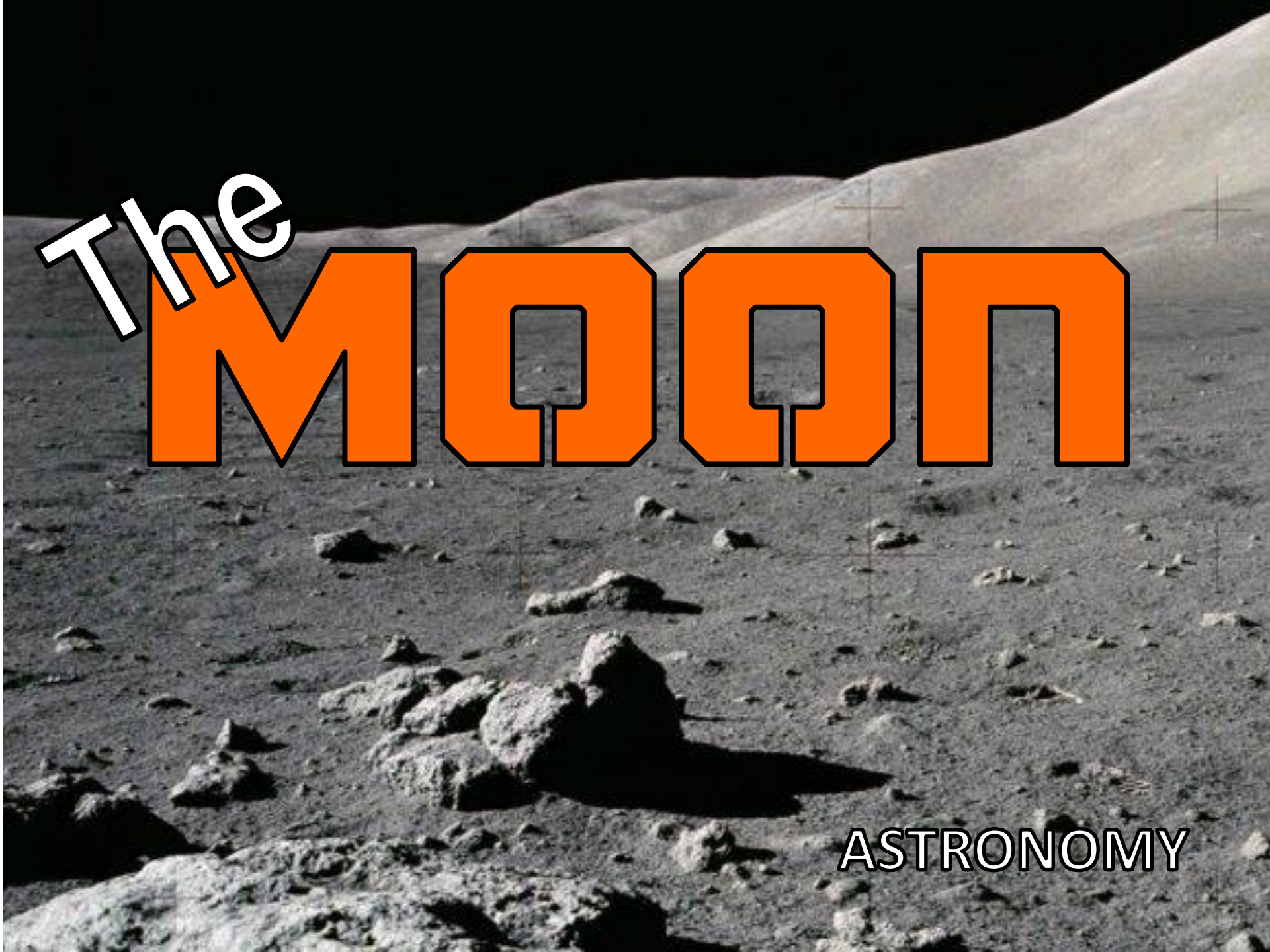

The
MOON
ASTRONOMY

The Moon!

Sections:

1. Introduction
2. Surface and Atmosphere
3. Orbit and Lunar Phases
4. Lunar and Solar Eclipses
5. Tides

Introduction

Fast Facts…

- Nearest _____
- Our largest natural _____
- 1/4th the diameter of Earth
- Barren ball of rock
- No air, _____, or life
- Hasn't always been inactive
- Heavily hit in its early days by massive _____ fragments – creating most of its current landscape

Surface of the Moon

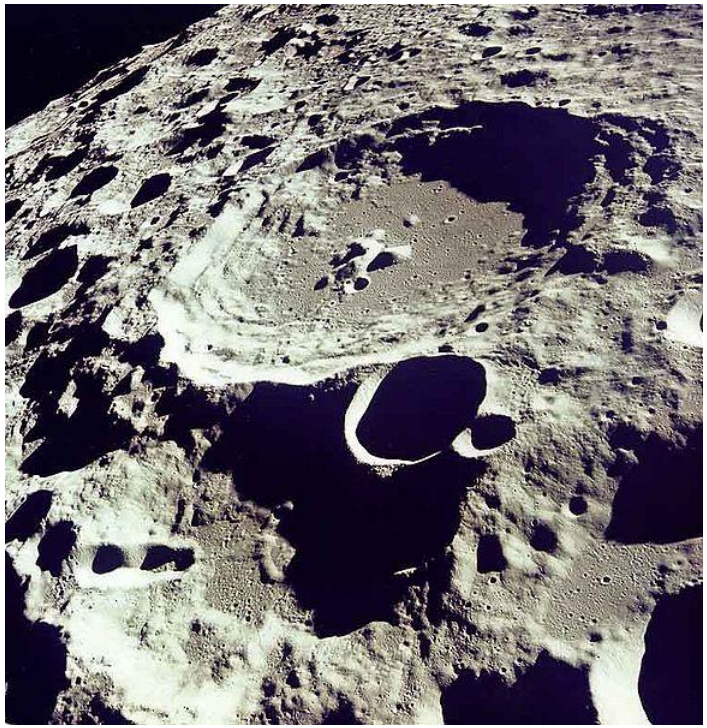
Surface Features

- Lots of _____ colors
- Some areas are darker than others
  - Some see a face known as the "_____ on the Moon"
- The _____ areas are much different in composition than the lighter ones
  - _____ = smoother
  - _____ = cratered

Surface of the Moon

Surface Features

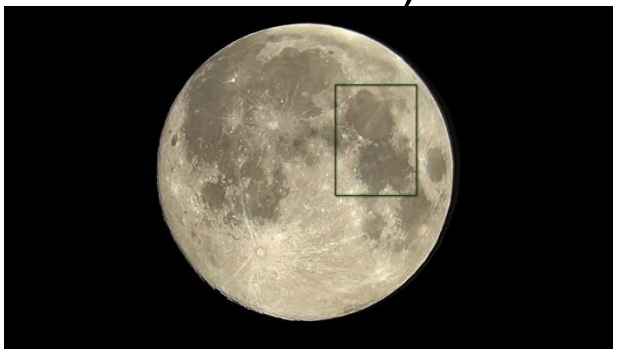
- _____– large circular pits
  - These were formed _____ of years ago
  - Preserved due to the lack of _____, weather, and erosion



Surface of the Moon

Surface Features

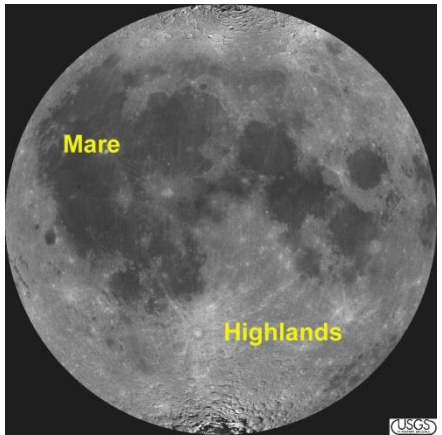
- _____(MAR-ee-ah) – large, _____, dark areas on the Moon's surface
  - From the Latin word "_____"
    - Contain no water though
    - Ancient astronomers thought they looked like dark oceans
  - The *Mare Tranquillitatis* ("Sea of _____") is where the first Moon landing occurred



Surface of the Moon

Surface Features

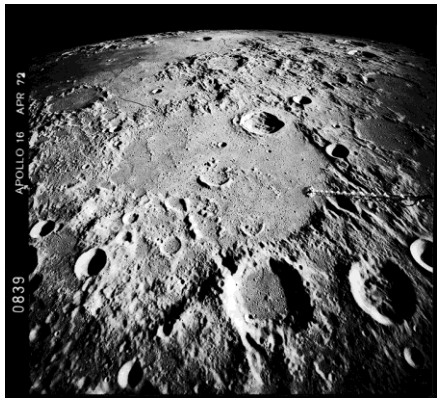
- _____– bright areas that surround the maria
  - Brighter because it contains different _____material than the maria
  - Less _____and much older
    - Maria = _____
      - dark, congealed lava rich in Fe, Mg, Ti, silicates
      - similar to the _____floor here on Earth
    - Highlands = _____
      - Rock rich in Ca, Al silicates



Surface of the Moon

Surface Features

- Scientists have been able to clarify these rock findings thanks to the _____collected during the _____missions
- The _____are heavily cratered to the point where some overlap
- Many range from less than a _____in diameter to over _____km across



Surface of the Moon

Surface Features

- Very few craters are _____originally
- Some have rounded rims (_____) while others have sharper ones (more _____)
- "cratering" has gone on here for a very long time
  - Getting hit by rock _____

Surface of the Moon

Surface Features

- _____– long, light streaks of pulverized _____that reach out from a crater
- Best example: *Tycho*
  - Rays can be seen during a _____moon

Surface of the Moon

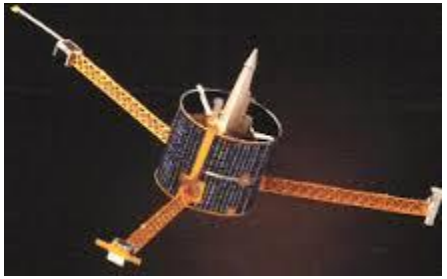
Origin of the Lunar Surface

- _____
- The size of the craters depend on the mass and velocity of the impacting object
  - As the _____rock expands from the point of impact, it forces surrounding rock outward, piling it into a raised circular rim
  - Sometimes they can hit so hard that they create a _____of debris in the center of the crater
    - Ex: Tycho

Surface of the Moon

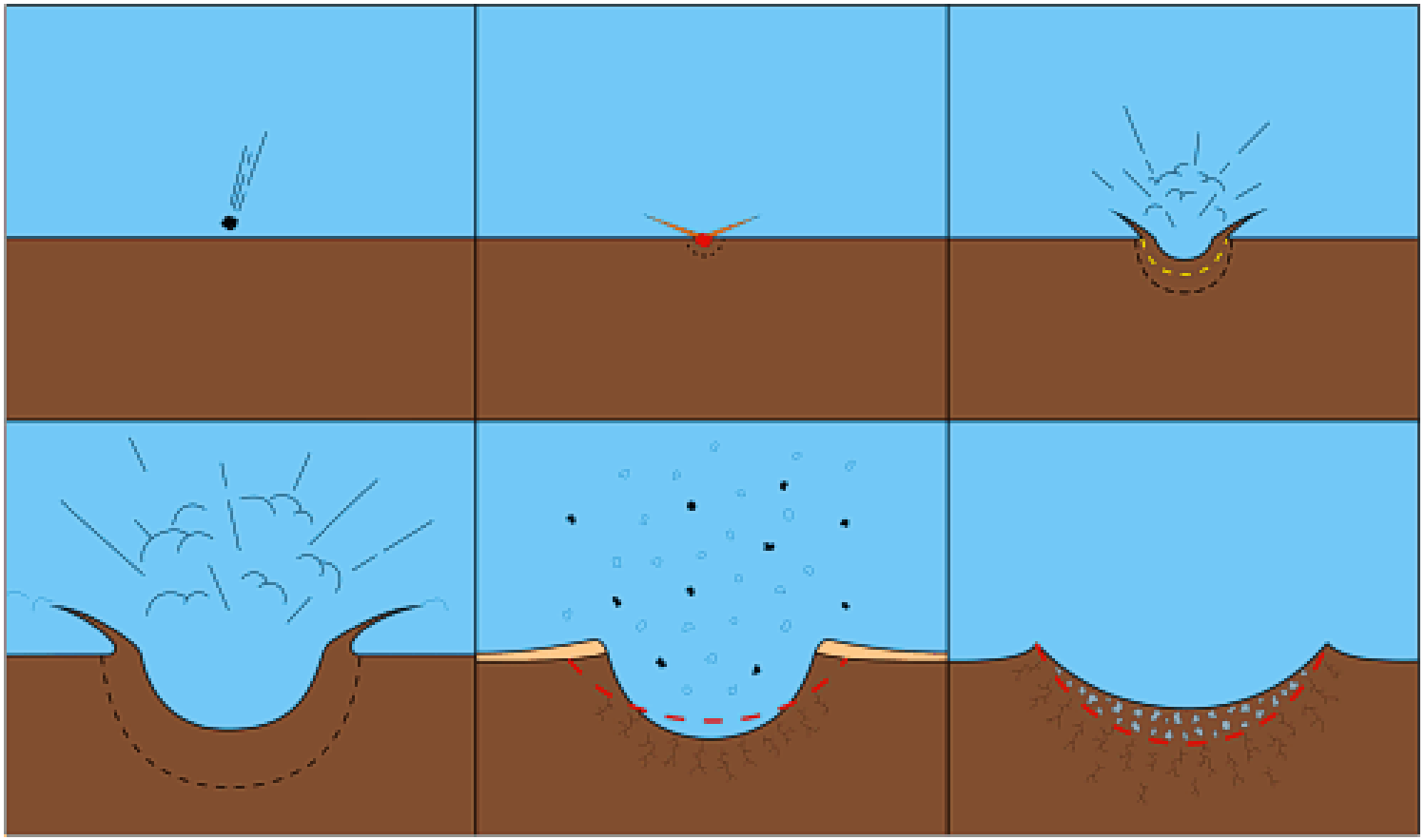
Origin of the Lunar Surface

- The Moon was _____when it was first forming
  - Full of heat and melted rock (lava)
- It quickly _____with all of the impaction and became _____early in its lifetime
- Able to detect this history thanks to _____rays from the *Lunar Prospector* _____
  - Determined that radioactive heat was present after a large body strike, melting the rock and allowing magma to rise to the surface
  - This created the _____



Surface of the Moon

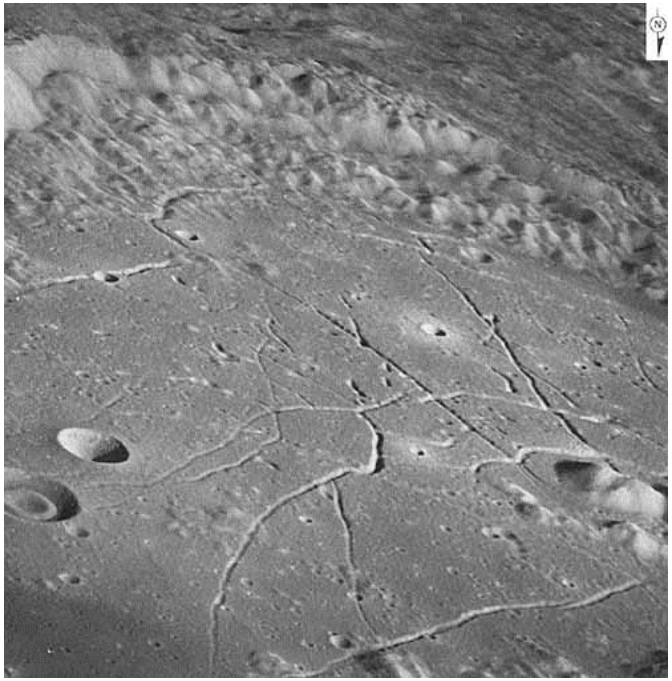
Origin of the Lunar Surface



Surface of the Moon

Origin of the Lunar Surface

- _____– lunar canyons
  - Some look like river _____
  - Carved by ancient lava flows and just simple cracking of the surface



Surface of the Moon

Origin of the Lunar Surface

- _____– rock chunks and fine powder that covers the moon
  - Means “blanket of _____”
  - Comes from the rock settling and lack of plate _____to recycle it
  - Several meters deep
  - Common on both _____and _____, just specific to the rock type in those areas

Absence of Moon Atmosphere

Lunar Atmosphere

- Only tiny amounts of _____have been detected on the Moon's surface
  - Mostly _____as a by-product of radioactive decay
  - Some _____near the Moon's poles
- Density is one-quadrillionth (1/1e-15) of Earth's atmosphere

Absence of Moon Atmosphere

Lunar Atmosphere

- Gone for 2 reasons:
  1. no _____activity means no heat being produced
  2. low _____= low gravity and can't hold heat
- Temperatures will soar during the day and crash at night