

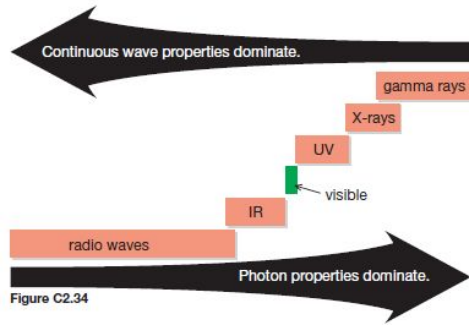
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|---|-----------------|
| Science 30                              | Unit C: Physics |
| Lesson 12 - Properties of Visible Light | 84 mins         |

Properties of Visible Light

|   |           |
|---|-----------|
| <p>Can go through:</p> <ul style="list-style-type: none"> <li>- <b>refraction</b>: a bending in the direction of a wave that occurs when the wave changes speed</li> <li>- <b>reflection</b>: a return of a wave from a boundary</li> <li>- <b>polarization</b>: confining a wave to vibrate in one direction</li> <li>- <b>diffraction</b>: the bending of a wave as it passes by obstacles or by the edges of an opening</li> </ul> | Draw each |
|---|-----------|

Refraction vs Reflection

|   |   |
|---|---|
| <p>Refraction - bending of light through lenses</p> <p>Draw concave and convex lenses and light reflecting</p> <p>Uses of each?</p> | <p>Reflection - using mirrors to change the direction of light</p> <p>Draw concave and convex mirrors and light reflecting</p> <p>Uses of each?</p> |
|---|---|



Telescopes

|   |  |
|---|--|
| <p>Refracting - ONLY lens used to FOCUS/GATHER light</p> <div data-bbox="66 1367 794 1692"> <p><b>Galileo's Telescope</b></p> <p>enlargement to show lenses</p> <p>incoming light rays</p> </div> | <p>Reflecting - mirror used to FOCUS/GATHER light</p> <div data-bbox="829 1367 1560 1692"> <p><b>Newton's Telescope</b></p> <p>curved mirror</p> <p>incoming light rays</p> <p>flat mirror</p> <p>convex lens</p> </div> |
|---|--|

Telescope Arrays

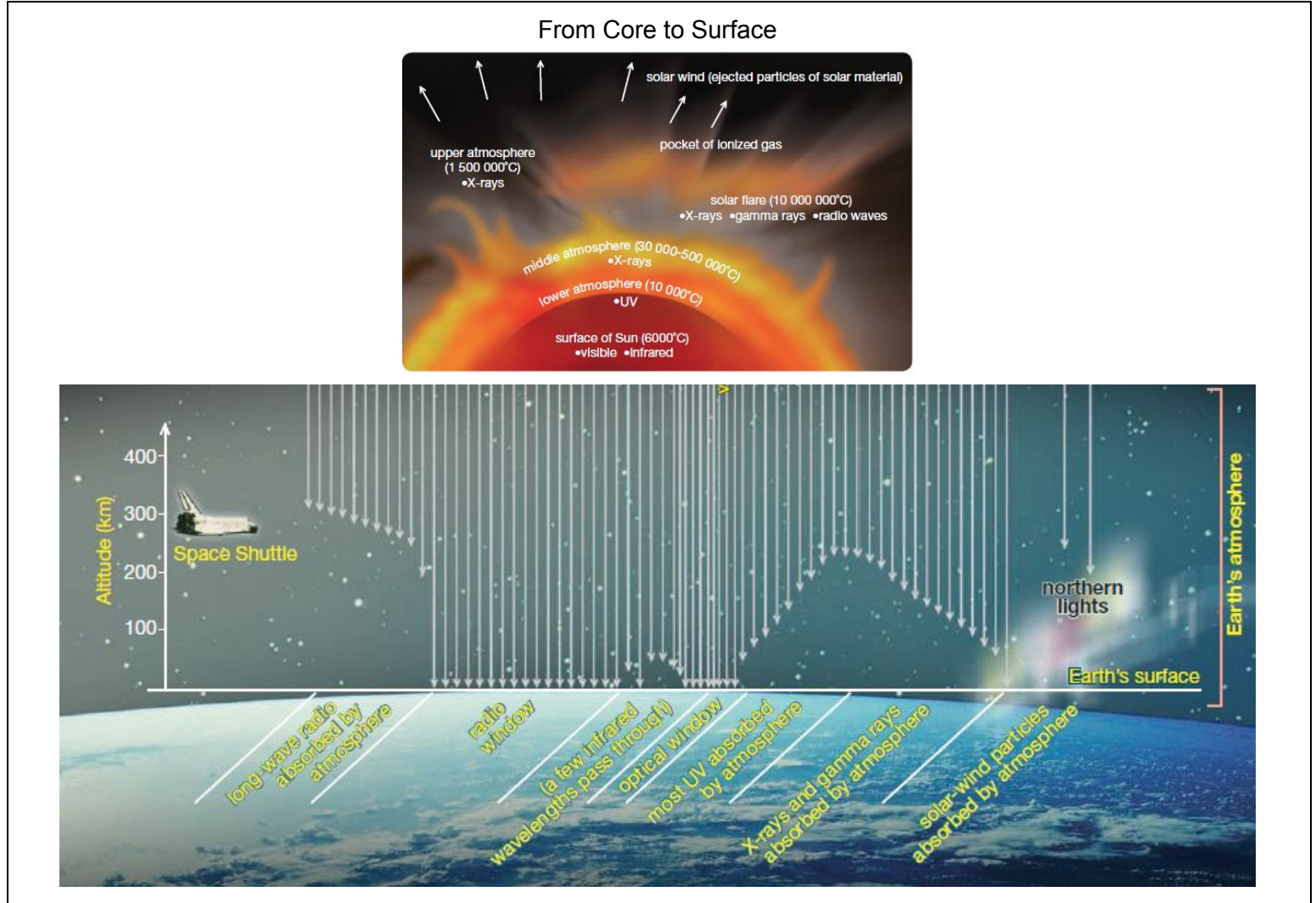
|   |      |
|---|------|
| <p>Array - uses several small telescopes to act as one big telescope.</p> <p>Used primarily as Radio Telescopes</p> | Draw |
|---|------|

## False-Colour Images

**false-colour image:** an image that depicts an object in colours that differ from how a person would see the same object using only his or her eyes; often used to produce images using EMR outside of the visible spectrum

Most really cool looking photos of space...

## EMR Emitted by the sun



# Science 31 - Lesson 35 - Unit C - Properties of Visible Light

Name: \_\_\_\_\_

Examples

Refraction

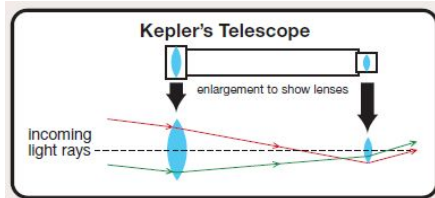
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Reflection

|  |  |
|--|--|
|  |  |
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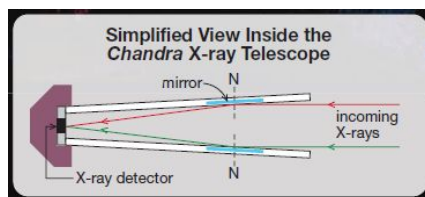
Practice

1) The figure below shows a telescope that was designed by Johann Kepler.



- a. Is Kepler's telescope a refracting telescope or a reflecting telescope?
  
  
  
  
  
  
  
  
  
  
- b. Carefully compare the light rays in this telescope to the light rays in a refracting telescope. Determine a disadvantage of Kepler's design.

2) The figure below shows a telescope that is used in the Chandra X-ray telescope.



- a. Is the Chandra X-ray telescope a refracting telescope or a reflecting telescope?
  
  
  
  
  
  
  
  
  
  
  - b. Carefully compare the light rays in this telescope to the light rays in a reflecting telescope. Determine why Chandra X-ray telescope might work the way it does.
- 3) Explain why astronomical observatories for infrared radiation are sometimes located in specially outfitted aircraft that can fly at high altitudes.

4) Explain why radio telescopes are so large.