**Objective:**

A new planet has been discovered beyond Pluto! A spacecraft has been sent to gather information about the planet.

**Create an infrared map of the planet**

1. What is infrared light?
2. Dark colors represent \_\_\_\_\_\_\_\_\_\_\_ temperatures

 Bright colors represent \_\_\_\_\_\_\_\_\_\_ temperatures

1. What are four coordinates on the perimeter of the coldest location(s) on your planet?
2. What are four coordinates on the perimeter of the warmest location(s) on your planet?
3. What could cause the variation in temperature on your planet’s surface?

***Overlay a topographic map showing elevation changes on the surface.***

1. Describe the topography (surface features) of your planet.
2. What is a likely source of heat?
3. What coordinates would you choose for a possible landing site? Explain.

Quick write: Explain how infrared and other wavelengths in the electromagnetic spectrum are useful for space exploration.

**Locate areas of magnetism on your planet**

**Challenge**: Design and build a magnetometer to detect magnetic fields around your planet.

* Use only the materials provided, unless you have permission from the teacher
* Device may not be more than 30 cm2 (It can be any shape!).
* Device may not touch the surface of the planet

Your team will have:

* 2-3 minutes to discuss materials and possible designs
* 15 minutes to design, test, and redesign your device
* One practice magnet

Once complete, pass your magnetometer over your planet slowly to look for areas of magnetism. Be sure your grid corresponds to the coordinates on the planet’s surface.

* Place **X**’s on your map in areas of magnetism.
* Highlight perimeter of areas with detectible magnetic fields.
1. How are grids useful for creating maps?
2. Why are NASA scientists interested in magnetic fields? What can magnetism tell us about a planet?
3. Why causes the Earth to have a magnetic field?
4. Explain why the Earth’s magnetic field is critical for life.