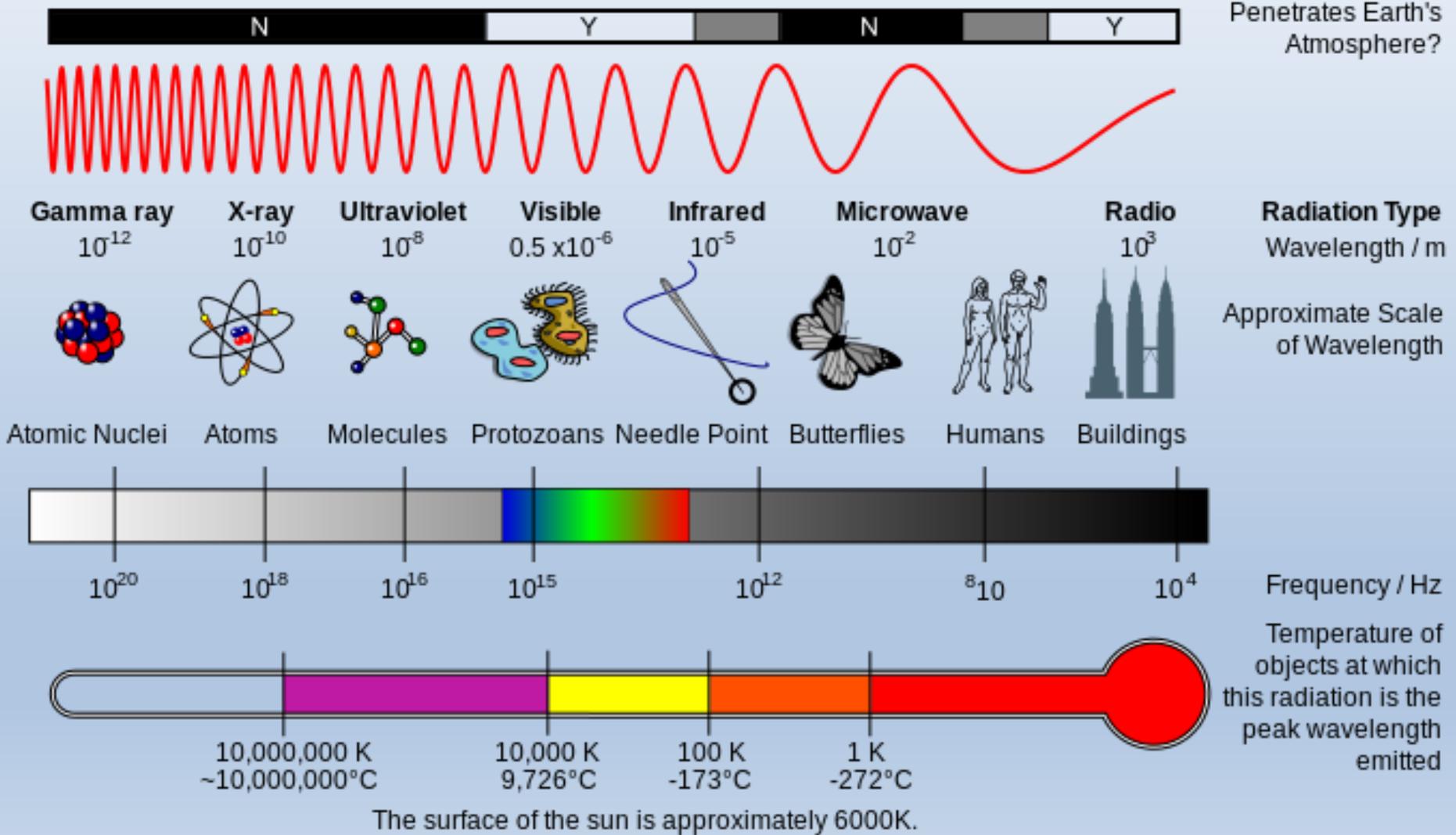


Intro Activity

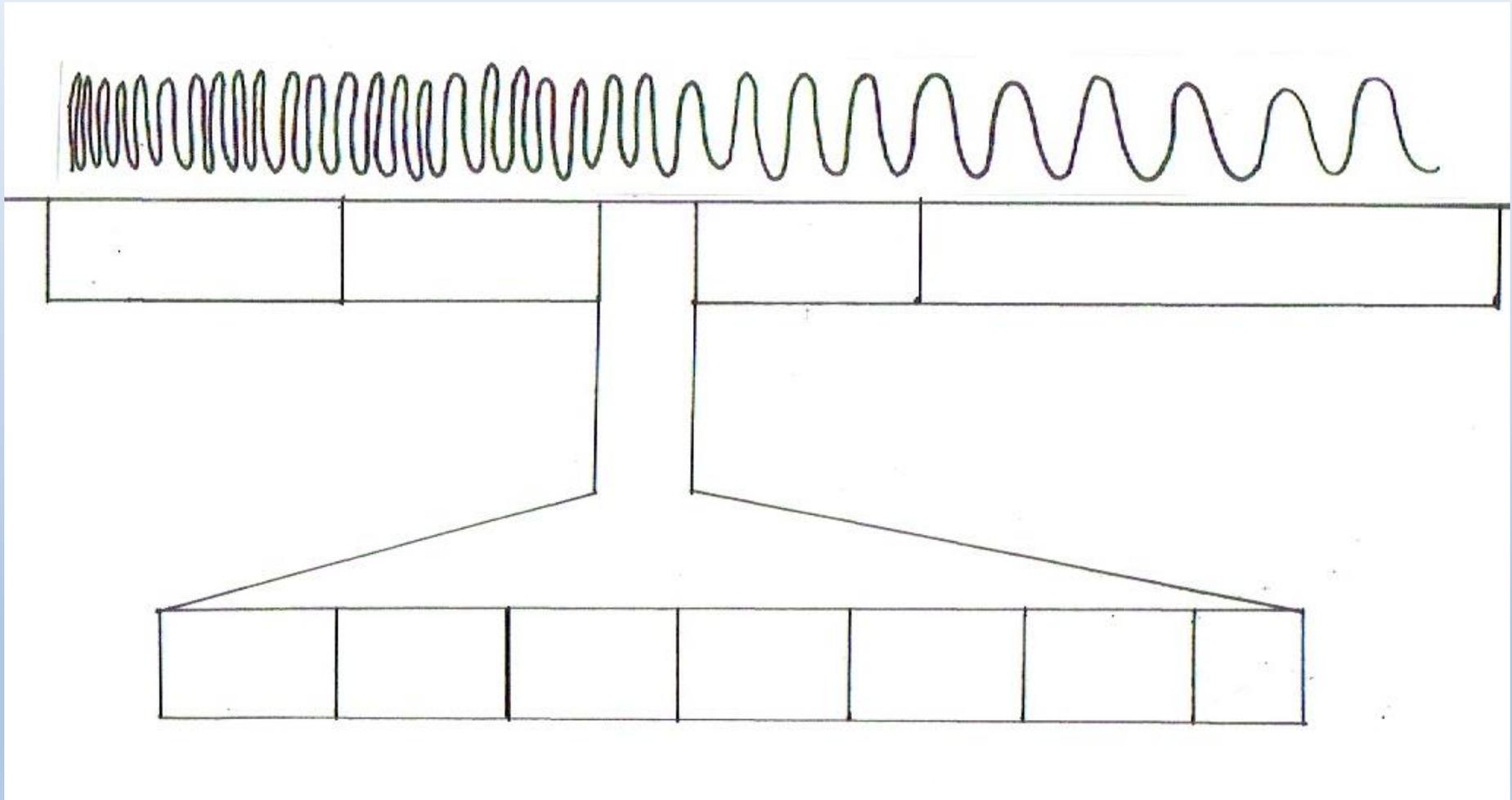
*Lab Research to Engineer a
Phosphorescent Bioplastic*

Qualitative Observations of the Beads

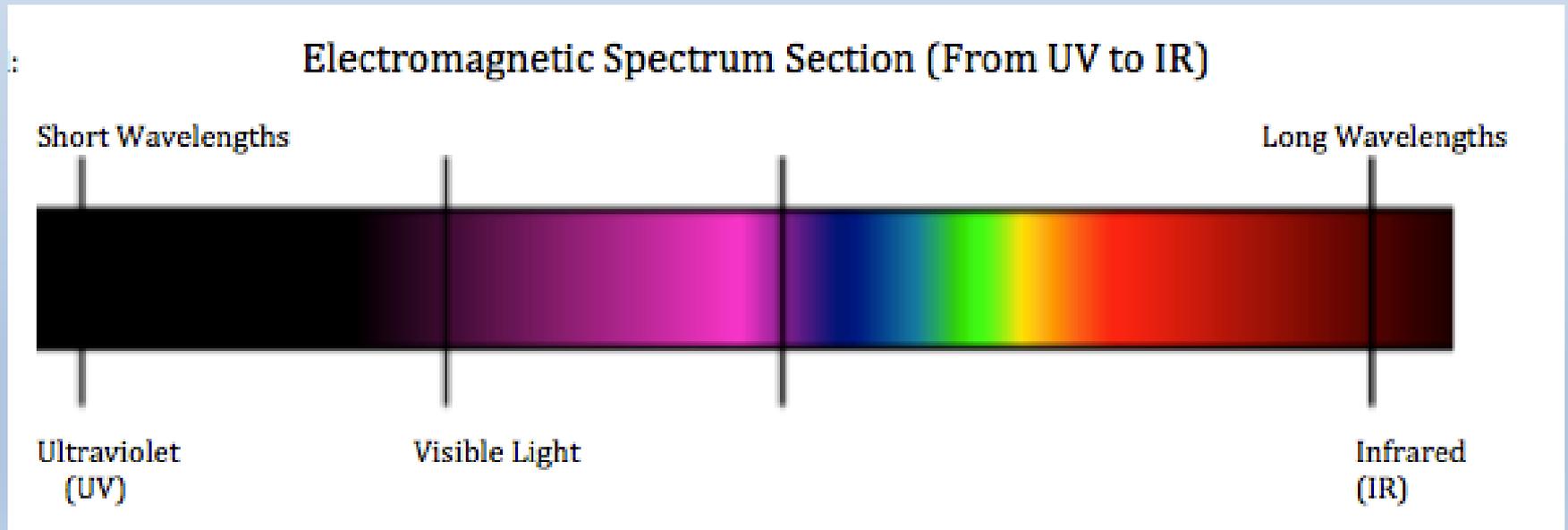
Electromagnetic Spectrum



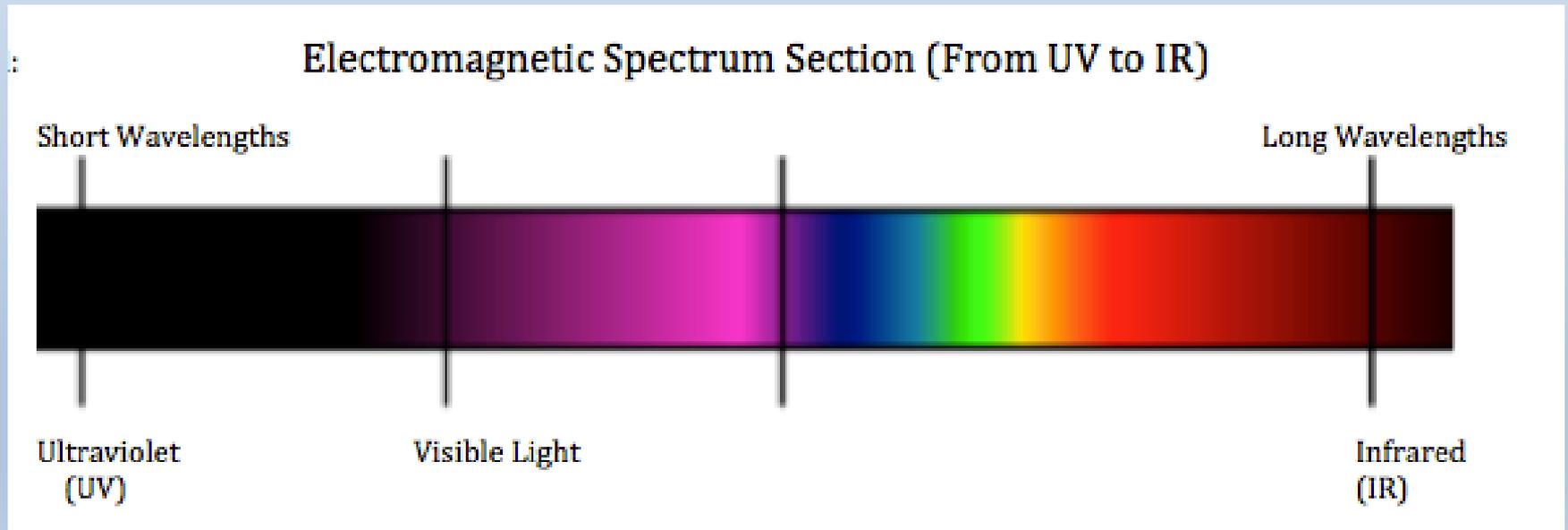
Electromagnetic Spectrum



What caused the beads to change colors?



What caused the powder to change colors?



Definitions

Fluorescent

- When hit with UV radiation, it absorbs the UV radiation and emits visible light
- BUT the emission **stops** as soon as the UV radiation stops

Phosphorescent

- When hit by a short wavelength, it absorbs the waves and emits visible light (of a longer wavelength)
- The emission may **continue** after the waves have stopped

Is the powder...

- Fluorescent?
- Phosphorescent?

Research/Design Problem

Today, your challenge is to create a phosphorescent bioplastic using the following reaction scheme:

corn starch + water + vinegar + glycerin + phosphorescent powder → phosphorescent bioplastic

...so that the bioplastic is structurally sound and gives off a high phosphorescent.

What reactant will you be manipulating?

~ problem step ~

Research Your Reactant

Ideas to research:

- What is your reactant?
- How is it commonly used?
- Is it commonly used in baking? If so, why?
- What does structural integrity mean to you?
- List your prior knowledge about the reactant.

Hypothesis

What is the *independent variable*?

What are the *dependent variables*?

Write a **hypothesis** that includes the variable and describes how the variables will change.

~ *hypothesis step* ~