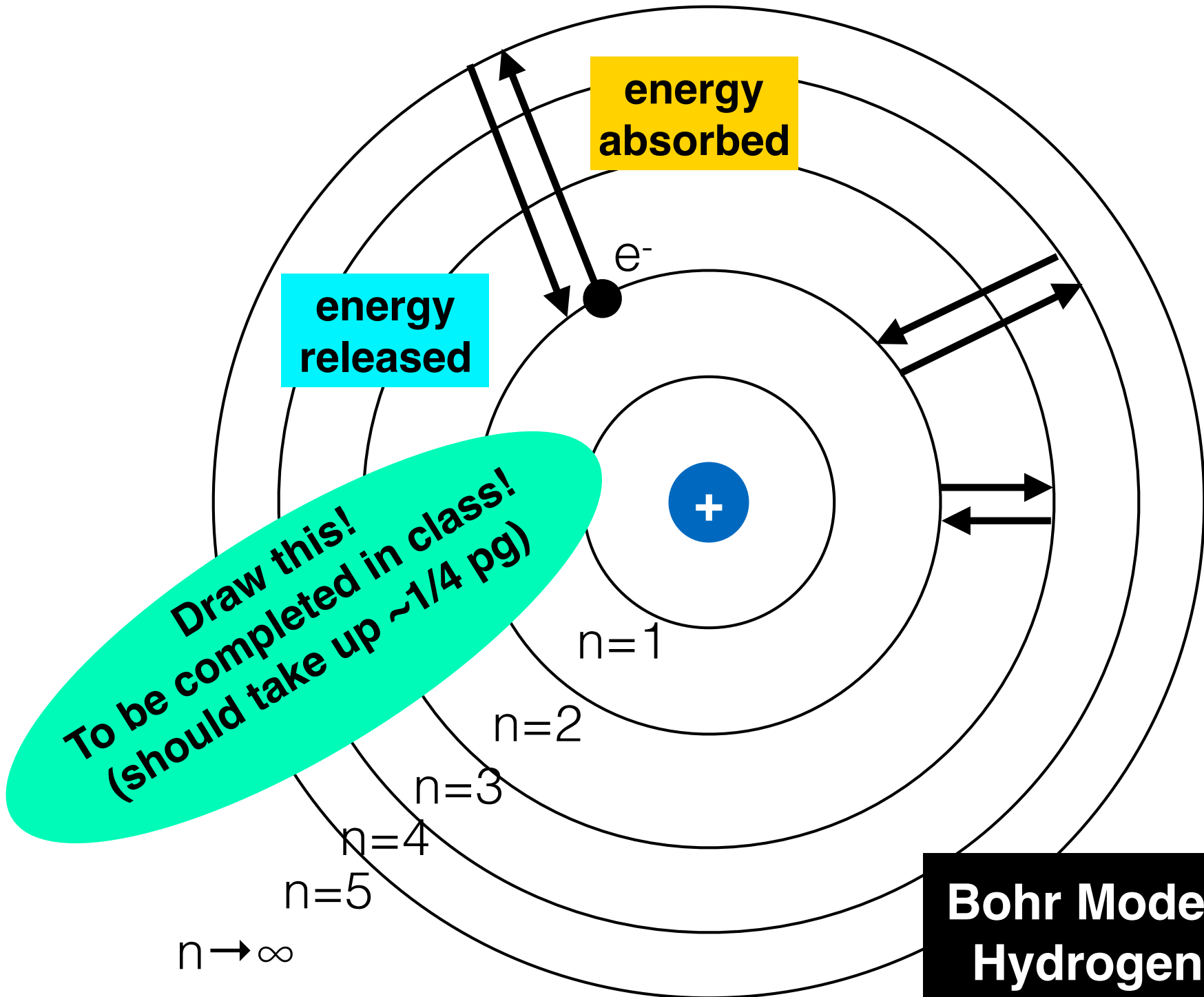
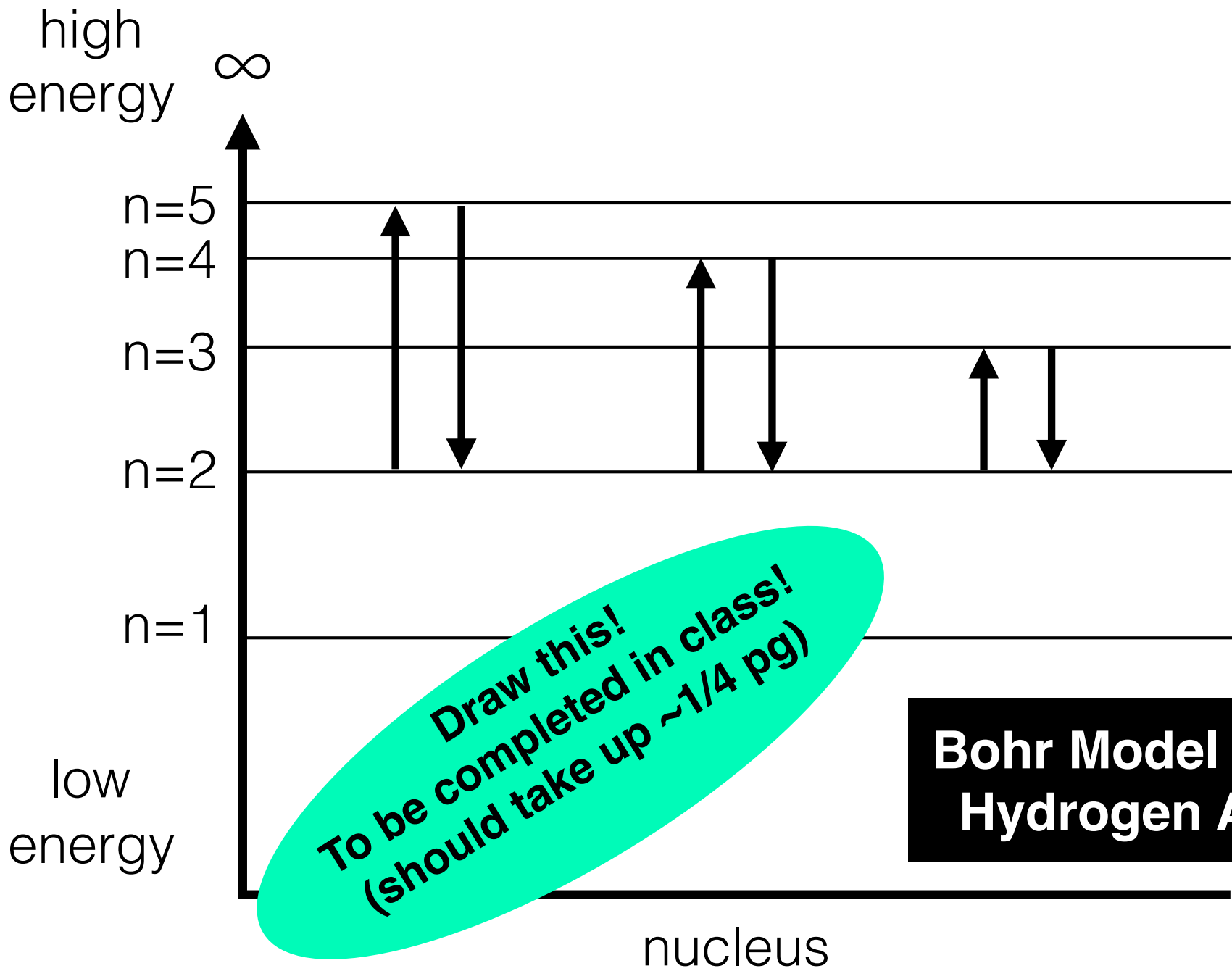


The Bohr Model of the Hydrogen Atom



Draw this!
To be completed in class!
(should take up ~1/4 pg)

Bohr Model of the Hydrogen Atom



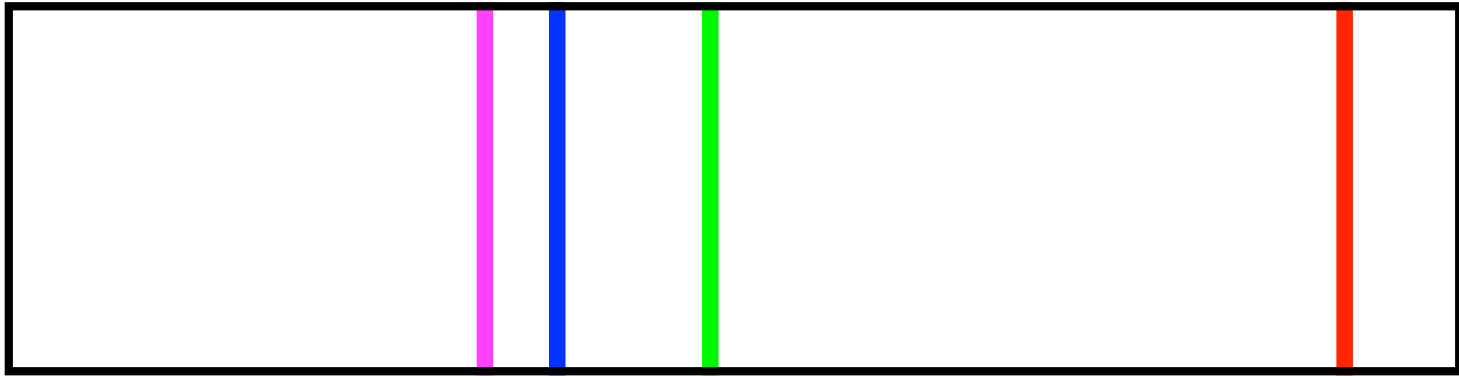
Draw this!
To be completed in class!
(should take up ~1/4 pg)

**Bohr Model of the
Hydrogen Atom**

Atomic Emission Spectrum (Emission-Line Spectrum)

The line spectrum produced when excited electrons return to lower energy levels and emit photons characteristic of the element.

Hydrogen Emission (Line) Spectrum

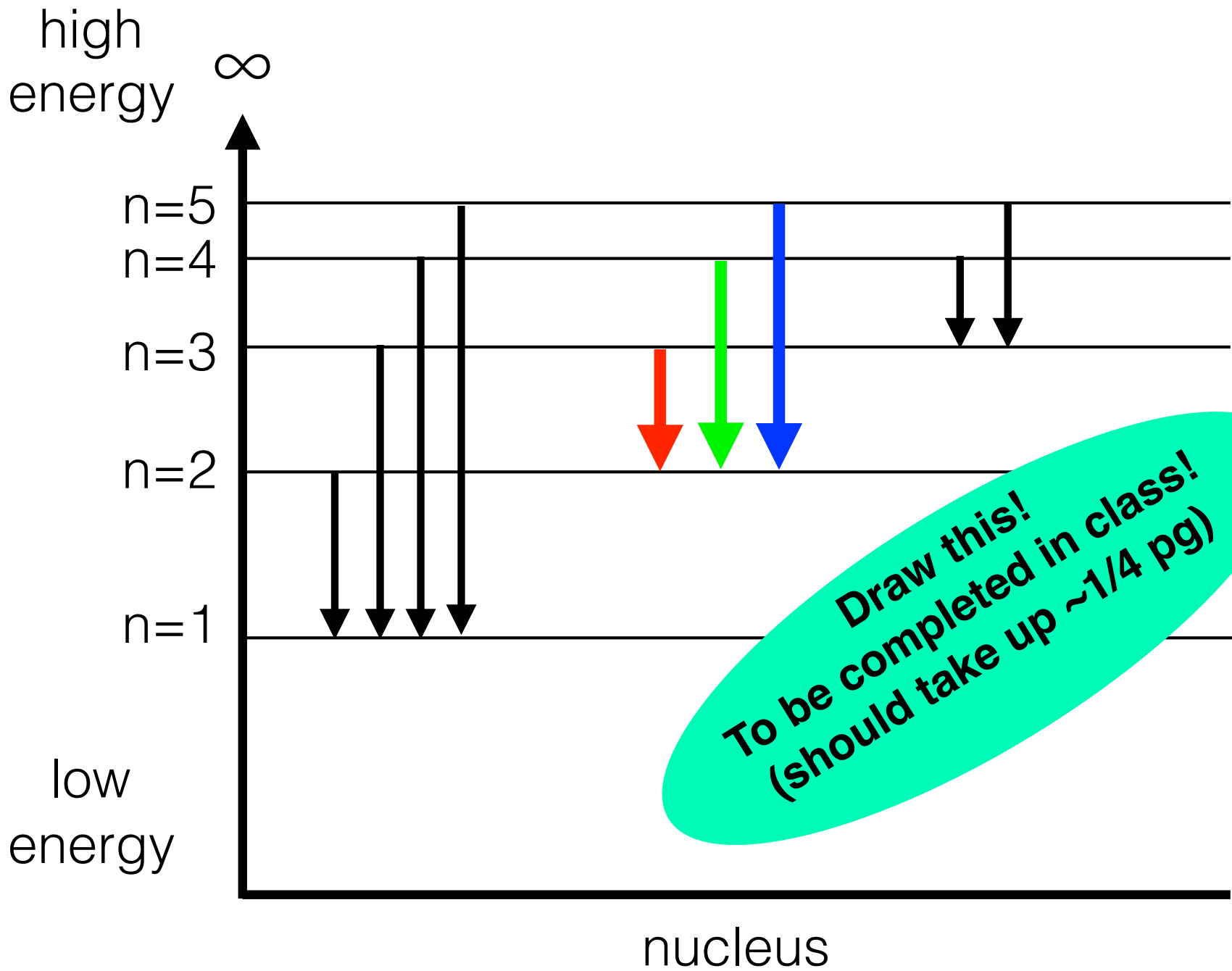


Blue: $5 \rightarrow 2$

Green: $4 \rightarrow 2$

Red: $3 \rightarrow 2$

Draw this diagram!



The Bohr Model

1. Electrons orbit the nucleus only within allowed energy levels.
2. Each energy level is at a specific distance from the nucleus.
3. Within an energy level, electrons do not lose energy.
4. When electrons are in the lowest energy levels available, the atom is in its “ground state.”

The Bohr Model (cont.)

5. When electrons absorb energy and move to a higher energy level, the atom is said to be in an “excited state.”
6. When an electron returns to a lower energy level it will give off electromagnetic radiation with energy exactly equal to the difference found between those energy levels.

What did the Bohr Model explain?

- 1. Explained how electrons could orbit the nucleus without losing energy.**
- 2. Explained the emission spectrum of hydrogen.**

What were the shortcomings of the Bohr Model?

- 1. Did NOT explain the emission spectra of elements other than hydrogen.**
- 2. Did NOT explain the chemical properties of the elements.**