**Harry Potter, Physics, and Invisibility**Worksheet

**Motivation:** As a keen physics student re-watching the *Harry Potter* series. You start to think: Maybe I can make an invisibility cloak myself? Wouldn’t it be convenient to be invisible from time to time?

**Aim:** Using our current knowledge of physics, we hope to breakdown and interpret the problem of invisibility as a physics problem.

**Part 1: Defining the terms**What is invisibility?

*Fill in the blanks*

Invisibility is the state of an object that \_\_\_\_\_\_\_\_\_\_\_\_\_ be seen or detected

\_\_\_\_\_\_\_\_\_\_\_\_\_ is another word for invisibility.

A \_\_\_\_\_\_\_\_\_\_\_\_\_ is the technology used to achieve invisibility of an object.

When we successfully cloak, we should not be able to \_\_\_\_\_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_\_\_\_ or the object.

**Part 2: Defining the problem**

The eye can be thought of an \_\_\_\_\_\_\_\_\_\_ problem.

\_\_\_\_\_\_\_\_\_\_\_\_\_ is the physics of light.

Then, invisibility can be also be thought of as an \_\_\_\_\_\_\_\_\_\_\_\_\_ problem.

**Part 3: Reviewing our physics**

*Match the letters to the definitions*

1. Reflection
2. Refraction
3. Lens
4. Normal

\_\_\_\_ when light bends after passing through media with different index of refraction

\_\_\_\_ a medium that allows light to pass to either concentrate or disperse

\_\_\_\_ redirecting light in the opposite direction

\_\_\_\_ is a reference line that is 90 ͦ to the surface

*Label the diagram*

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**Part 4:** Attempting cloaking with reflection

*Watch my demonstration and answer the following:*

What do you see in front of you?

How does the apparatus work?

How many mirrors do you think is used in my apparatus?

**Part 5:** Self-reflection and Discussion

*Critical thinking*

Did we achieve invisibility? Why or why not?

What changes would you make and what would you do differently?