

# Lenses

**Essential Question:** Write your own question about building an optical tool based on the problem.

**The Problem:** You will be given two lenses to use in building an optical device that either magnifies or diminishes an object. You must use online resources as well as trial and error to figure out how to arrange these lenses to get the best possible result.



**Resources:** Locate at least two of sources of information about lenses, telescopes, magnification, etc. that will help you build an effective optical device and answer your essential question. Write notes, including key vocabulary terms and concepts, from each source and cite it. Sites such as Ask.com and Yahoo Answers are not appropriate sources.

## Planning and implementing a strategy:

- Explain how you used the information you found during research to design your optical device.
- Describe in a few sentences your procedure for building your optical device.

## Monitoring progress and revising strategy:

- Describe the testing you carried out on your optical tool while you built it, any changes or additions you made to it in order to improve it, and why you thought these would help.

## Evaluation of the solution:

- Photograph your finished product from at least two angles.
- Was your solution to the problem successful? How do you know? Explain the criteria you used to judge the success of your solution, as well as what you might do to improve it even more.

## Reflection:

- Diagram and explain how two lenses can be used together to magnify an image.
- How did your device compare to those of other students?
- Summarize what you learned by doing this ELO project.

**Bring your device to our next whole group meeting for a discussion of you findings.**