# Detailed Lesson Plan - Photography 101 - The Science and Art of Light and Cameras

**Lesson 2: Lenses**

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1. **Objectives:**

### At the end of this lesson the student will be able to express an understanding of:

* + Lenses
  + Concave Lenses
  + Convex Lenses
  + Complex Lenses
  + Focal Lengths
  + Image Formation

#### Subject Matter:

1. **Materials:** Visual aids (Hand drawn image diagrams), concave and convex lens formed using glasses or mason jars with water, and , Pictures.
2. **References:** 
   * Light – Wikipedia - <https://en.wikipedia.org/wiki/Light>
   * Optics for kids – Concave vs Convex Lenses - <https://www.synopsys.com/optical-solutions/learn/optics-for-kids/lenses.html>
   * Lenses – Wikipedia - <https://en.wikipedia.org/wiki/Lens_(optics)>
   * Nikon - <http://imaging.nikon.com/lineup/dslr/basics/19/01.htm>
3. **Values:** Develop a genuine understanding of lenses, their types, image focusing and creation.

#### Procedure

1. **Learning Activities:**
   1. **Lenses**
      1. Explanation of what a lens is.
      2. Understand lens construction and their purpose/
      3. Discuss types of lenses.

#### Convex Lenses

* + 1. Understanding convex lenses.
    2. Explanation of how light convergence and image formation works with convex lens.

#### Concave Lenses:

* + 1. Understanding concave lenses.
    2. Explanation of how light convergence and image formation works with concave lens.
  1. **Complex Lenses**
     1. Understanding of a complex lens.
     2. Understanding of focal lengths of combination lenses.

#### Evaluation and Assignment:

1. Being online this class is relatively reliant on the student’s zeal. However the following assignment pieces are recommended.
   1. Use a glass jar filled with water and create DIY lenses.
   2. Try light bending with the lenses you created.