



**Teacher Guide**  
**Altered Reality: Impossible Made Possible**  
**Prism Goggle Activity**

**Lesson Summary:** The human brain is highly adaptable. This activity demonstrates how the brain adapts to a new situation. Students investigate learning to toss a beanbag at a target while wearing prism goggles. Students make observations on adjustments made by the “thrower” and make predictions of success. Students will discuss the benefits of continual practice of a given task, or set of tasks.

**Grade Level 9-12**

**Lesson Length**  
**1 class period**

*Activity and lesson plan created by BrainU participants Jacky Carey and Brian Brzozowski  
Delran High School, Delran NJ*

**Objectives—Students will be able to**

- explain the importance of repetition in learning.
- build observational skills for recognizing how an individual learner adapts when solving a problem.

**Teacher's Notes— Some things to consider before doing this lesson include:**

- Should the distance of the toss be the same for every group?
- The adaptations the thrower will make *while wearing the goggles* will vary. Encourage students to jot down what they did in the way of adjustments as soon as they complete their throw (alternatively, you may ask another member of the group to act as a recorder).

**Materials**

**for each group of students:**

- 1 pair prism goggles
- 8 beanbags (same weight, shape, and texture)
- 1 target (An egg crate works well.)

**for each student:**

- a copy of the Student Guide

**Procedures**

**Engage**

In the Student Guide, students will answer these questions: *Name a situation when you tried something for the first time. Were you successful in attaining your goal on the first attempt? Did you give up?*

After they have written their answers, lead the class in a discussion about the importance of repetition of a skill to gain proficiency and ultimately master said skill. Topics of discussion may include practice, failure, success, short-term memory, and long-term memory.

**Explain**

Invite a volunteer from the class to come to the front of the room and then ask the student: *Do you think you can toss the beanbag into the target?*

When the student responds “yes,” ask: *Why do you think this act can be accomplished?*



**Altered Reality: Impossible Made Possible  
Prism Goggle Activity**

Continue with prompts until the student expresses that s/he has tossed an item into a target many times before with and without success.

Ask the volunteer: *Do you think you could toss the beanbag into the target if your vision were impaired?*

Field different answers from the individual and from the class to guide them to the conclusion that the task of tossing a beanbag with impaired vision is extremely difficult or impossible to accomplish.

**Explore**

1. Separate the class into small groups (4-5 students per group).
2. Direct one student in each group to put on the goggles and then attempt to toss the beanbag into the target.

Each student wearing the goggles may make unlimited attempts at throwing the beanbag into the target.

3. Explain that the students may make any adjustments necessary in order to complete the task -- with exception of moving closer to the target or removing goggles while in the act of tossing.

**Stand back!!!!** Tosses will be erratic.

4. Ask students to observe how quickly they successfully got the beanbag into the target.

If they missed the target, they will observe what adjustments were made and if/how those adjustments affected the outcome.

5. Ask students to report their observations by answering questions 4-7 in the Student Guide.

**Expand**

Once all students have accomplished the task, ask them to answer the post-activity questions in the Student Guide.

Upon completion, expand on the questions in the Student Guide:

*What did you learn from this activity?*

*How does the message of this activity apply to school?*

*How does the message of this activity apply to life?*

by leading a class discussion about how this activity applies to school. Topics may include the importance of homework, mid-chapter quizzes, review before a test, and chapter tests. Discuss how this activity applies to real-life situations (video games, sports, various careers/jobs, etc.).

This discussion should include how a seemingly impossible task can be accomplished when it is tried repeatedly. Talk about the idea that practice and learning from mistakes will lead to attaining a goal. Encourage the students to think of this activity during times when they feel a problem is unsolvable and to remember that they have unlimited tries to solve any type of problem. With these unlimited tries, they will be actually practicing so the skill becomes permanent.