**Course Data**

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6th Grade

Technology/Engineering

50 minutes

**Standards**

GLE 0607.T/E.2 Know that the engineering design process involves an ongoing series of events that incorporate design constraints, model building, testing, evaluating, modifying, and retesting.

**Objectives**

TSWBAT judge which description best fits the steps in the engineering design process.

TSWBAT describe the different steps in the engineering design process.

TSWBAT apply the engineering design process to solve a problem.

**Materials**

Pencil

The Engineering Design Process worksheet

Problem-Solving worksheet

Crayons

**Anticipatory Set/Focus**

***ABK-*** Ask the students to think of a time that they had a problem arise in their life.

***IA-*** Go around the room and ask random students what their problem was.

***RRL-*** Can you think of a time you had to come up with a solution to fix a problem in your life?

***IA-*** Have students share with their neighbor.

***LL-*** Today we are going to learn the six steps to the engineering design process and apply it to problems that we need to find a solution to.

**Instruction**

1. Review previously learned material. (see set/focus)
2. State objectives. (see set/focus)
3. Present new material.
4. Hand out the Engineering Design Process worksheet to students.
5. Have one of the students read the direction out loud.
6. After the students have completed the worksheet, have volunteers tell their response that they wrote.
7. Now, hand out the Problem Solving worksheet. Have one of the students read the directions out loud.
8. Let the students work, but be prepared for them to need guidance, for example, if a student chooses prompt B you could ask questions like this:
   * How much water does a plant need?
   * How often does it have to be watered?
   * What are some ways to move water from place to place?
   * Could you use gravity, electricity or another force to help you?
   * What are some containers you’ve seen water in?
9. When students begin to draw their solutions, provide crayons. When the students are completing the *Design* step, you could ask questions like this (referring to the student’s drawing):
   * How does it work?
   * What material is this made out of?
   * How does this connection work?
   * How does this fit together?
10. Have students share with the class.

**Closure**

Learning Verbalized.

Have students return to their desk and share some of their solutions with the class.

Ask them what they learned today.

**Assessment**

Take up the worksheets. Display inventions on the wall.

**Accomodation**

* For ESL students: This activity covers nationality, so there are many different nationalities that will be represented by the inventors.
* For different leveled groups, accommodate as needed.
  + Level I and II (high)—have them
  + Level III and IV (low)—have them