

Useful Invention

Overview: Using ordinary materials, students attempt to turn them into inventions which are useful in solving a problem.

Materials:

- invention work sheets (pages 55–57, one per group)
- items needed, as listed on the work sheets
- scissors, tape, string, glue, stapler, water, and other items which teams may need during the construction of their inventions

Preparation:

- Make sets of materials for students to use in creating an invention as shown on the work sheets. The sets will be duplicated so that two teams will work with the same set of materials to see if they can use them in a different way.
- Prepare a table containing items all groups may borrow during their work.

Procedure:

- Briefly discuss what students have learned about inventing. Be sure they know that inventions often come about because there is a problem which needs to be solved. Also, inventors need to be creative and look at using materials in different ways than most people would in order to turn them into new inventions.
- Explain that the students will be divided into teams. Tell them that each team will be challenged to use a set of materials for inventing a specific type of item. Let them know that each invention task will be done by two different teams. The challenge will be that each team must make a different invention from the same set of materials.
- Divide the students into six teams and distribute the work sheets. Let each team read the instructions. Be sure the pairs of teams working on the same task are separated in the room and do not exchange ideas.
- Show the students where in the room the general team materials are located.
- Distribute the sets of materials to the teams. Instruct them to examine and discuss these before they begin the task. Without giving them any ideas, monitor their progress and offer them encouragement to be creative.
- This lesson may require more than one class session to complete in order to encourage the students to apply their creative skills to the task.

Closure:

- Have students show their inventions and demonstrate how they work.
- Place the inventions on display in the classroom, along with the work sheet for each team.

Invent a Musical Instrument

You are a team of musicians which wants to enter a contest. It requires that a new type of musical instrument be made with the materials listed here. You must be able to play a simple tune on the instrument.

Materials:

- 3 shoeboxes
- 10 tongue depressors
- 6 glass bottles
- rubber bands of different widths
- 12 drinking straws
- large metal nail

Getting Started:

- Look at the materials you have available to construct the musical instrument. Try using the materials to see if you can make sounds with them.
- The team needs to decide which of these materials will be used to make your musical instrument. (Remember, you must be able to play a song on the invention you make!)
- In the box below, draw a design for your musical instrument. Label the materials that will be used in it and show how your instrument will be played. (You are welcome to use the general materials provided, such as scissors and tape, to construct your instrument.)
- Assemble your musical instrument and play a simple tune on it.
- Make any changes which may be needed to improve the instrument so it makes good sounds.
- Give your invention a name and write it in the design box.

Invention name: _____

Invented by: _____

Invent a Tool

You are a team of engineers. You have been given the materials listed below. Your challenge is to use them to make a useful tool. You will decide what the tool should look like and what work it will do for you.

Materials:

- 3 feet (90 cm) string
- 12 drinking straws
- box of large paper clips
- 6 metal washers about the size of a nickel
- 6 tongue depressors
- circle magnet about the size of a nickel and with a hole in its center
- 10 rubber bands

Getting Started:

- Look at the materials you have to use in constructing the tool. Try using the materials to see if they can be used to do some type of work.
- The team needs to decide which of these materials will be used to make your tool. Remember, you must be able to do some type of work with this invention.
- In the box below, draw a design for your tool. Label the materials that will be used and show how it works. (You are welcome to use the general materials provided, such as scissors and tape, to construct your tool.)
- Assemble your tool and test it to be sure it works.
- Make any changes which may be needed to improve the invention to make it work better.
- Give your invention a name and write it in the design box below.

Invention name: _____

Invented by: _____

Invent a Toy

You are a team of engineers. You have been given the materials listed below. Your challenge is to use them to make a new toy. This toy can be for a child of any age.

Materials:

- 3 unsharpened pencil
- 2 feet of heavy string
- box of small paper clips
- 6 metal washers about the size of a nickel
- 6 drinking straws
- 5 circle magnets about the size of a nickel and with holes in the center

Getting Started:

- Look at the materials you have. Try using the materials to see if you can get any ideas how they may be used to make a toy.
- The team needs to decide which of these materials will be used to make the toy. Remember, the toy can be used by a child of any age. Toys for young children must be simple but also safe so they cannot be swallowed.
- In the box below, draw a design for the toy. Label the materials to be used and show how it works. (You are welcome to use the general materials provided such as scissors and tape to construct your toy.)
- Assemble your toy and test it to be sure it works.
- Make any changes which may be needed to improve the invention to make it work better.
- Give your invention a name and write it in the design box below.

Invention name: _____

Invented by: _____