

Evaluating Personally Constructed Objects



Focus: Students evaluate their created toys or games and consider other useful items they could make that use invisible forces.

Specific Curriculum Outcomes

Students will be expected to:

- 35.0 compare and evaluate personally constructed objects [GCO 2]
- 17.0 communicate procedures and results [GCO 2]

Performance Indicators

Students who achieve these outcomes will be able to:

- test, evaluate, and modify their toy or game to meet established criteria
- give useful feedback to others
- explain how their toy or game works using invisible forces

NOTES:

Attitude Outcome Statements

Encourage students to:

- be sensitive to the needs of other people, other living things, and the local environment [GCO 4]

Cross-Curricular Connections

English Language Arts

Students will be expected to:

- communicate information and ideas effectively and clearly, and to respond personally and critically [GCO 2]
- use a range of strategies to develop effective writing and representing and to enhance their clarity, precision, and effectiveness [GCO 10]

Getting Organized

Components	Materials	Before You Begin	Vocabulary
• Student Magazine, pages 30–31 • BLM <i>Two Stars and a Wish</i>	• students' Science Journals	• Arrange for the original focus group of kindergarten or grade 1 students to revisit the classroom to test prototype toys and games. • Invite focus group students and members of the school community to participate in the culminating Toy Invention Convention.	

ACTIVATE

Criteria for Fun!

Students can develop a criteria checklist for an appealing toy or game to ensure that the original focus group suggestions are all addressed in their product design.

CONNECT

Design Process Continued

Step 3. Test your solution. Evaluate your solution.

Groups continue to follow the design process by testing, evaluating, and modifying their prototype toy or game as necessary. Encourage students to test their toy or game so that they have an opportunity to consider how to modify and improve it. Prompts for discussion might include:

- Which invisible force does your toy or game use?
- Did your game work the way you intended?
- Did your toy perform as well as you planned?
- Is your toy or game fun to play with?
- Are there things you could do better?



Remind students to take notes on their actions and observations in their Science Journals. Encourage students to add any new questions they may have to the I Wonder Wall.

Product Review

The original focus group can be invited back to the classroom to view and evaluate the new games and toys. Class members and focus group members can provide feedback using BLM *Two Stars and a Wish*. You may wish to have volunteers available to help the focus group students evaluate the toys and games. Comments could be given orally and recorded on the BLMs by the volunteers.

Feedback Review

Groups can consider the feedback they received and decide whether to make further adjustments to their toy or game. Students should record in their Science Journals what they might do differently the next time based on their experiences throughout the design process.



CONSOLIDATE

Step 4. Share your solution and what you learned.

Hold a Toy Invention Convention and invite the original focus group and members of the school community to the classroom for an opportunity to play with the newly created toys and games. During the convention, students should demonstrate how their products work and be ready to answer questions about their toy or game and the process they used to develop it.

How It Works

Students can create an instruction guide for using their toy or game and include information about the invisible forces that make it work. Alternatively, or in addition, students could create a commercial or advertisement for their toy or game that explains its features. The toys and games could be donated to the classroom of the focus group students.

EXPLORE MORE



More to Make

Share pages 30–31 of the Student Magazine with students and have them examine the images of other useful objects which use an invisible force.

Ask:

- Which object would you consider making? Why?
- What other ideas for products do you have?



Students could record their ideas with sketches in their Science Journals.

WRAPPING UP THE UNIT



Revisit any remaining questions posted on the I Wonder Wall and have students discuss answers in small groups or with a partner. If there are questions that cannot be answered, these can remain on the wall to be discussed and researched further.

Discuss with students what they have learned about the ways static electric charges and magnetism work, what helpful uses they provide, and their potential negative effects.

Two Stars and a Wish

Name: _____

★ I like how you _____

★ I like how you _____



I wish you could have _____

Name: _____

★ I like how you _____

★ I like how you _____



I wish you could have _____
