

Super Paper Planes

Summary

This activity, done in pairs, helps students understand force, mass and measurement.

Group Size

Pairs

Materials

- [*Super Paper Planes*](#)

Straw

Paper squares

Clear tape

Large paper clips

Paper tube

Pencil

Index cards

Additional Resources

Books

The Great International Paper Airplane Book, by Jerry Mander, George Dippel and Howard Gossage; a Fireside Book Published By Simon and Schuster; New York

Background for Teachers

The force used is air from the lungs. Therefore, the more air forced from the lungs the farther and faster something will go. What happens then, if you have three similar objects, the same design but of different mass?

Intended Learning Outcomes

2. Manifest Scientific Attitudes and Interests.
3. Understand Science Concepts and Principles.

Instructional Procedures

Invitation to Learn

This is a force, mass and measurement activity. Children work in pairs; one participates while the other measures. Children will create 3 planes, powered by a straw, out of 3 different kinds of paper. Find a place to set up. A long hallway is fine. Using masking tape set up a starting area by making a "toe" line. This is the spot where all participants will start. Then measure off 3 feet (1 yard), 6 feet (2 yards) and 9 feet (3 yards) and make tape lines with the measurements noted.

Instructional Procedures

Create the planes by using the paperclip to trace over the top of the pattern, press hard so the indentation can be seen and used. This makes it easier to fold.

Follow the instructions, make all three paper planes (the planes made out of the heavier paper will take a little more time).

Make a paper tube out of the lightest paper. It should be approximately 6 to 8 inches long; 2 inches for each plane.

Close one end of each tube by folding the paper back on itself and taping the folded edge.

The tube should be as air tight as possible.

The tube can be attached, with tape, to each plane, on the top or the bottom. It is the child's

choice.

The children take turns standing at the "toe" line, inserting the straw into the paper tubes and using "lung" capacity to push the planes down the hallway.

Their partner records the results. The results can be graphed.

The children record the results of the plane activity on the three index cards; using mass or the weight of the plane as the writing criteria.

Extensions

Curriculum Extensions/Adaptations/ Integration

Try differently designed planes; larger -- smaller.

This activity requires some degree of small muscle coordination. Children with this complication may require some assistance from the teacher or their partner.

Family Connections

Supply a copy of the Super Paper Planes template and instruction.

Children can take this home and remake the planes out of multiple items.

Assessment Plan

Following directions; are the children able to successfully make the planes? Are they able to cooperate and participate with one another?

3 x 5 index card proper placement in the Science Pocket Folder

Index card explanation

Bibliography

Research Basis

Tomson, K. E. Show and Tell: *Journal Writing Every Day: Teachers Say It Really Works!* Education World. Professional Development, Curriculum.

An overview of journal writing in the classroom and the benefits derived from daily writing. The teachers who spoke ranged from high school to first grade. All believed that it improved writing skill; grammar, spelling, structure and communication abilities. The surprises were the enhancement of the teacher/student relationships and the willingness to write about all subjects, including math. Some stated that it was a slow daily process, but the rewards were more than worth the effort.

Authors

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