Connections to School —

NPASS2 projects are relaxed, engaging and fun, while stressing five of the science process skills mentioned in state and national standards: observing, investigating, questioning, explaining and problem-solving. Afterschool is not the place to teach science vocabulary, but even without naming them, these projects give children direct experience with science ideas they may encounter again in school. In Straw Rockets these ideas include force, speed, trajectory, pressure, friction and air resistance.

Master Scientist Skills

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MASTER EXPLAINER

Pure guesswork

Makes reasonable connections

Reasons from evidence

Helping Children Explain

When a child tries to explain something in science, grown-ups should listen carefully, ask questions and gently help put the pieces together — at the child's own level of understanding.

Its really not about getting the *right* answer. Its about learning to make reasonable connections and inferences. Guessing is sometimes fine: looking at the evidence is better. The two together can work really well.

EDC

NPASS2 is a project of
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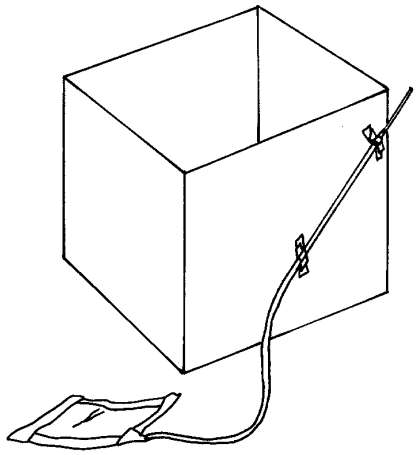
NPASS2 on the Web
http://npass2.edc.org

NPASS2 is funded by the National Science Foundation, grant #ESI-0917567

Making Science Fun

Straw Rockets:

an after school science and engineering project



Students design a rocket and a launcher to test how far they can make their rocket travel.

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The National Partnerships for After School Science

FOR PARENTS

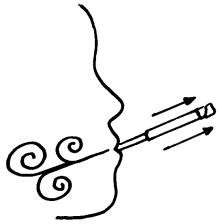
Summary

Students design a rocket (missile) that will travel as far as possible through the air. They investigate how the missile's shape, size, weight, stability and launch angle affect to length of flight.

Activities

The Straw Rockets activities include:

- The Basic Straw Rocket
- Rocket Launcher
- Book Drop
- Launch Position
- Fins
- Rocket Length



Materials

Duct tape	Cardboard box
Jumbo straws	Regular drinking straws
Quart size slider freezer bags	2 Large heavy books
Self-adhesive notes	Plastic tubing
Chewing gum or modeling clay	Cellophane tape

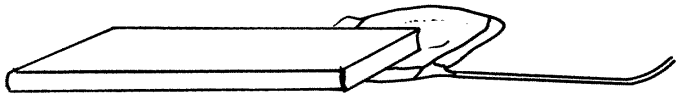
Questioning

Ask these types of questions as your child designs the challenges at home:

- What works (and what doesn't)?
- What have you tried (and what happened)?
- What could you change (and what do you think would happen)?

FOR KIDS

Try these challenges at home.



Can you build a working rocket launcher from materials that you have at home? For example, a resealable plastic bag, straw and strong tape to reinforce the bag? What are the challenges in using different materials?

Use some sticky notes if you have them (or paper and tape) to design ideal fins for your straw rocket. What shape will you give your fins? Where will they be placed on your rocket? What size should your fins be? What difference do fins make in your rocket's flight length and accuracy? What is the best fin design to help your rocket hit a target.