

L1 Building is a Breeze!

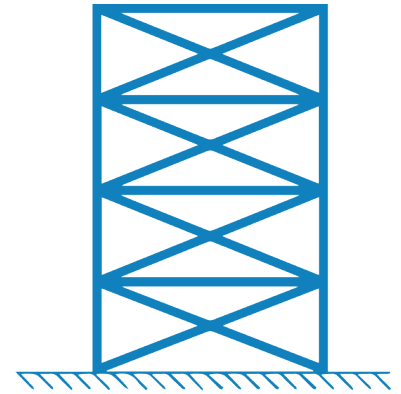
Structural Science: Lesson 1 of 3

Set the Stage:

Hi Pals! Ruff Ruffman here! Ruff Ruffman uses his new service called “Ask Ruff First” or “ARF,” to help kids looking for a way to keep their mini-golf tower from tipping over in the wind in this video from The Ruff Ruffman Show.

Big Question: Can Ruff figure out how to help keep the miniature golf tower from tipping over in the wind?

Resources: [Building is a Breeze!](#) video: 5 minutes



Activity:

Procedure: After the intro video – Engage

During the following steps of the activity, provide children with the opportunity to predict, ask questions and discuss ideas.

1. Ask your child to put in their own words what the problem was and how it was solved.
2. Have them draw a picture of the problem and the solution.
3. Find a way to work together to create a structure that WON'T blow over with the box fan.

Reflection:

To communicate their observations: “I saw...”

To reflect on their predictions: “I thought...but then...”

To demonstrate science community skills: “I liked...” or “I loved...”

Enrichment:

On another day, you could test your structure for strength. After additional research, you could also create a new city solving problem such as homelessness, poverty, and food shortages.



Materials:

- Box fan
- cardboard tubes
- cereal boxes
- plastic bottles
- paper plates
- card stock
- paper/ plastic cups
- shoe boxes

Standards:

Funding for The Ruff Ruffman Show™ and its video contents are provided by the U.S. Department of Education and the Corporation for Public Broadcasting. BSB – The Do Place: ISTE 4.A; Benchmarks 4F/P2; NGSS K-PS2.A.2; K-PS3.C.1; K-PS2.A.3; NS – 4F/P2



Beyond School Bells
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L2 Building a Newspaper Chair

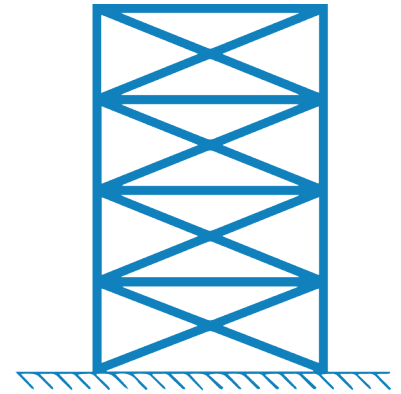
Structural Science: Lesson 2 of 3

Set the Stage:

Hi Pals! Ruff Ruffman here! Explore structural science as Ruff Ruffman uses his new service called “Ask Ruff First” or “ARF, to find out if you can build a chair strong enough to support a person’s weight from newspapers.

Big Question: Can Ruff figure out how to make newspaper strong enough to support a person’s weight?

Resources: [Ruffman Escapes!](#) video: 4 minutes, 59 seconds



Activity:

Procedure: Pause video at 2:45 and- Engage

Ask kids if they think newspaper can be made stronger. If so, how do they think that newspaper can be made stronger? In the brainstorming session, no idea is too far out. Parents should try to record ideas somehow.

Finish the video.

Ask how many predictions were at least in part correct?
Work with your child/children to make a chair-like structure from rolled and taped newspaper. Allow as much time as needed.

If you have more than one child, you could make it a competition to see who can make the strongest chair!

Reflection:

To communicate their observations: “I saw...”
To reflect on their predictions: “I thought...but then...”
To demonstrate science community skills: “I liked...” or “I loved...”
To make a conclusion: “If Ruff Ruffman wants to make newspaper stronger, he should...”

Enrichment:

Try creating more structures that could be used to designate a reading corner or circle with siblings.



Materials:

- Newspaper – possibly donated from local businesses
- Tape
- Measuring Tape/ Ruler

Note to Parents:

Often times corner gas stations will keep old newspapers for school projects.

Standards:

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L3 Building for the Birds

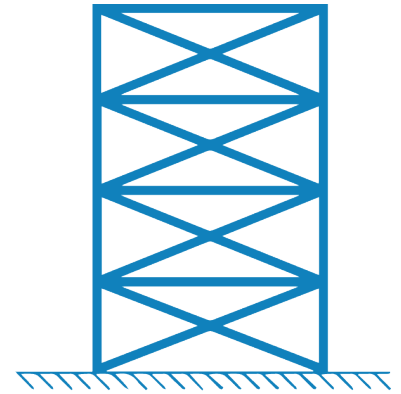
Structural Science: Lesson 3 of 3

Set the Stage:

Hi Pals! Ruff Ruffman here! Explore structural science by building a topple-proof birdbath in this video from The Ruff Ruffman Show. Having played the title role in a Broadway musical called "Hello, Birdie!" where he was lowered into a birdbath, Ruff is an expert. Can he use what he learned to create a fail-proof bird bath design?

Big Question: Can Ruff help the kids with their tipping bird bath problem?

Resources: [Winging It!](#) video: 4 minutes, 45 seconds



Activity:

Procedure: After the Intro Video - Engage

1. Ask your child to tell you what they saw happen throughout the video.
2. Have them draw images of what they saw.
3. [Link](#) to get different bird bath ideas.
4. Let's work together to make a bird bath for our home!
5. Have your child draw the materials that they plan to use for this project.
6. Have them draw the structure that they plan to build.

This may take more than one session, depending on how involved the structures become!

Reflection:

To communicate their observations: "I saw..."

To reflect on their predictions: "I thought...but then..."

To demonstrate science community skills: "I liked..." or "I loved..."

Enrichment:

Plan to use the bird baths at home. Count the number of birds that come in one day, week, month. Draw the species that they see. It is like a bird diary!



Materials:

- Paper, pencil, markers to draw ideas and plans
- One 2"; one 4" terracotta pot per team
- One terracotta saucer
- Outdoor paint
- Smocks
- Paint brushes

Note to Parents:

Link to [the bird bath](#) in this lesson.

Standards:

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