Just Hanging Around

Presented By

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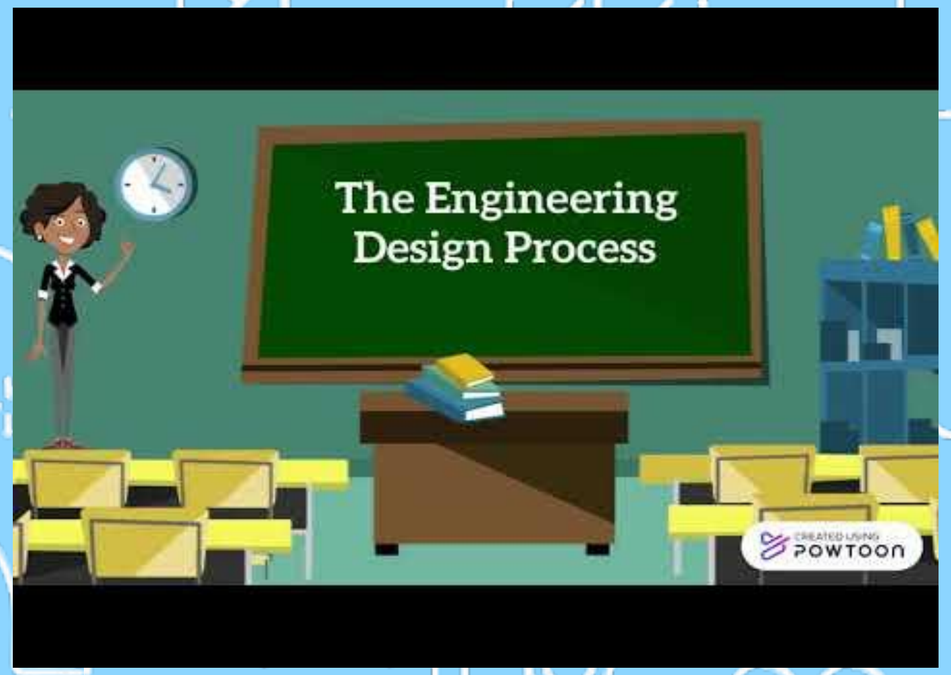
Engineering Design Process

The Engineering Design Process is a series of steps utilized by engineers to create solutions and products.



Click to listen to the instructions or hear more details

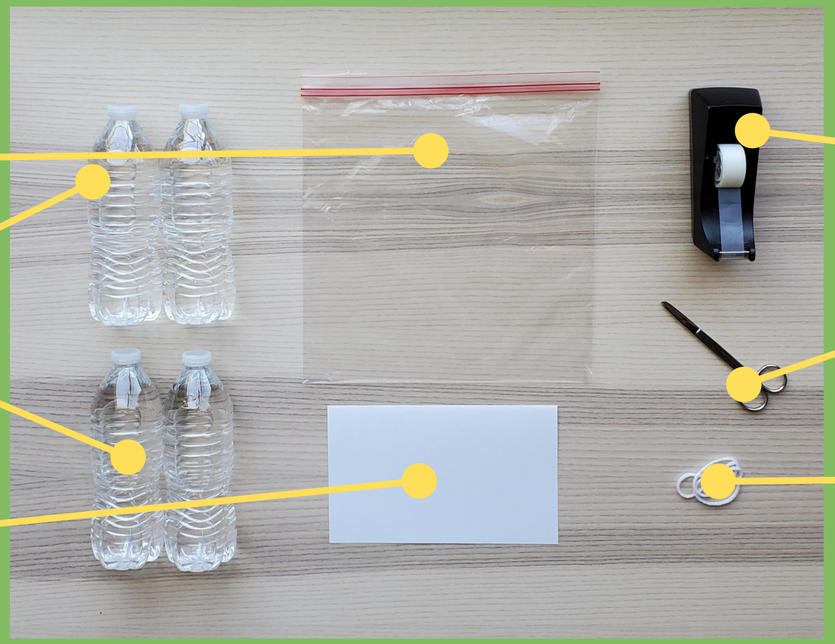
Continue

Materials

1 gallon bag

4 water bottles

Half a sheet of paper



tape

1 pair of scissors

1 string/shoelace

Don't forget to print out your pamphlet and fill it out!

Continue

Step 1: Identify the problem

You are trying to move your piano from the first floor of your brand new apartment to the fifth floor.

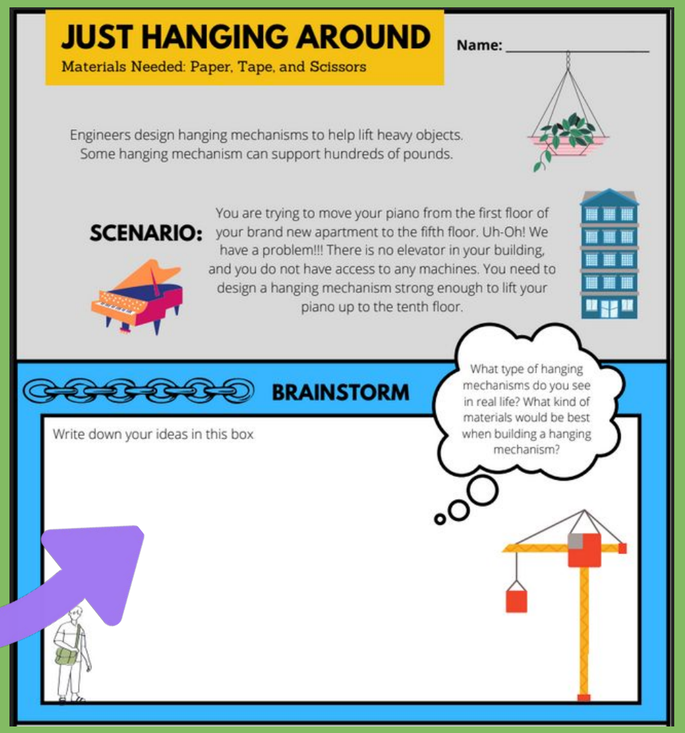
You need to design a hanging mechanism strong enough to lift your piano up to the fifth floor.

Continue

Step 2: Brainstorm

What do you plan on making with your materials?

Write down your ideas in the 'Brainstorm' section of your pamphlet!



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Step 3: Limitations & Constraints

Uh-oh! There's a shortage on supplies so you're limited to a certain amount of material. You also need to make sure your hanging mechanism can hold enough weight!

You must work with the following constraints:

- Use only 1 half-sheet of paper to build the hanging mechanism
- Your hanging mechanism must hold 4 water bottles

Continue

Step 4: Design

Time to make some blueprints!

Come up with 3 different designs of a hanging mechanism you may build to lift your piano and draw them in the 'Design' section!

Continue

Step 5: Build

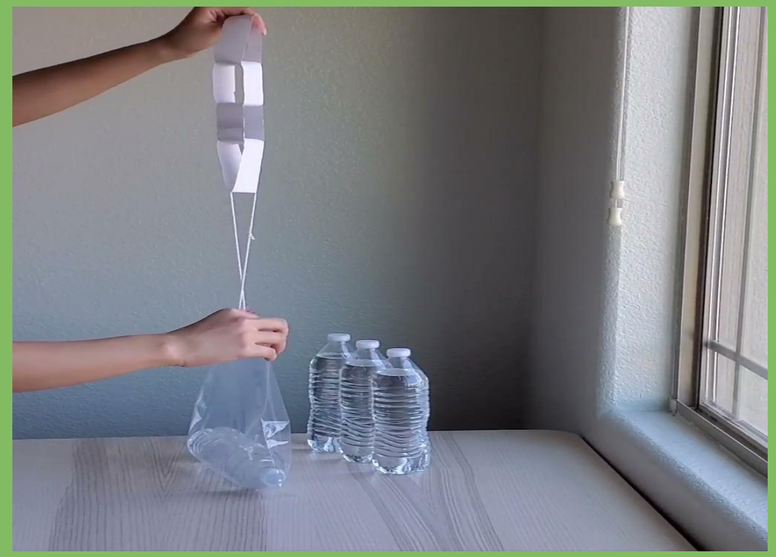
Now that you have designed a few different hanging mechanisms,
choose the one you think will work the best to lift the piano and have fun creating it!

Remember: you can only use 1 half-sheet of paper and your hangin ater bottles

Continue

Step 6: Test and Evaluate

Time to test out your hanging mechanism!
Follow the steps listed on your pamphlet.
Make sure to write down your observations too!



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Step 7: Redesign, Rebuild, & Retest and Reevaluate

Take the time to modify your hanging mechanism or choose another one of your designs to build.

Redesign

Rebuild

Retest & Reevaluate

Click the buttons to go back and reread the steps

Continue

Step 8: Share Your Solution

Describe your experience—your successes and your failures—to your family and friends

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The following slide will show the solution to the problem.

If you have not built and tested your hanging mechanism, go back to steps 3-6.

If you are ready to move on, go to the next slide.

Continue

Explanation

In a real life situation, ropes or chains are some tools often used to lift objects.

However, because we are limited to paper and tape, a sling is the best hanging mechanism. The single piece of paper can evenly distribute the weight.

If you were to make paper chains, the chains may rip where they link together.

Continue

Thank You!

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Redesign

Based on the observations you made while testing your hanging mechanism, redesign it to make it better and stronger.

Return

Rebuild

Build a new hanging mechanism based on the the Redesign changes you made.

Remember: you can only use 1 half-sheet of paper and your hanging mechanism must hold 4 water bottles

Return

Retest and Revaluate

Time to test out your hanging mechanism!
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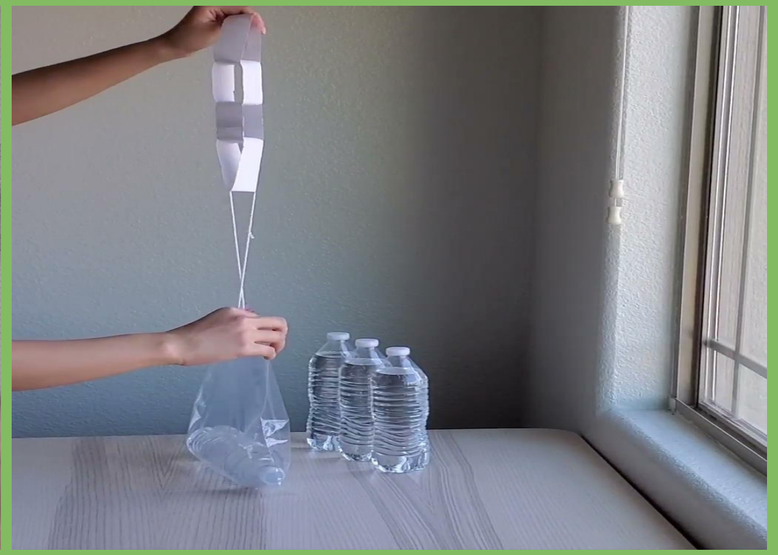

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