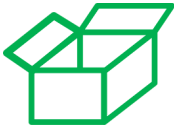


CHALLENGE # 6: MOBILE (EXPLORATORY) YOUTH WILL BUILD A MOBILE THAT BALANCES



MATERIALS:

Construction paper, thread, fishing line, string, skewers, sticks, straws and tape.



VOCABULARY:

LEVER: A rod with a fixed point, called a fulcrum. **LEVERS** can be used to change the direction and the amount of a force. The shapes of your mobile will be attached to a **LEVER**. If the two shapes are exactly the same, they will balance. However, if your shapes are different sizes, you will have to adjust the location of the fulcrum to make it balance. If you move the fulcrum closer to the larger object, it reduces the force of the larger object.

LIFE



SKILLS

4-H LIFE SKILL:

PROBLEM SOLVING: Building a mobile that balances will be difficult. You will need to **PROBLEM SOLVE** to balance your mobile as you continue to add more objects.

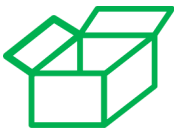
DO: YOUTH COMPLETE THE ACTIVITY

Watch the challenge: <https://go.umd.edu/mchallenge>



CHALLENGE #6: MOBILE (GUIDED)

YOUTH WILL BUILD A MOBILE THAT BALANCES



MATERIALS: 5 pieces of construction paper, string, 6 skewers and clear tape.



VOCABULARY: **LEVER:** A rod with a fixed point, called a fulcrum. **LEVERS** can be used to change the direction and the amount of a force. The shapes of your mobile will be attached to a **LEVER**. If the two shapes are exactly the same, they will balance. However, if your shapes are different sizes, you will have to adjust the location of the fulcrum to make it balance. If you move the fulcrum closer to the larger object, it reduces the force of the larger object.



4-H LIFE SKILL: **PROBLEM SOLVING:** Building a mobile that balances will be difficult. You will need to problem solve to balance your mobile as you continue to add more objects.

DO: YOUTH COMPLETE THE ACTIVITY

Watch the challenge: <https://go.umd.edu/mchallenge>

then follow steps 1-5 on the following page.



CHALLENGE #6: MOBILE (GUIDED STEPS ONE THROUGH FIVE)

STEP 1. IDENTIFY THE PROBLEM

Design and build a mobile as a decoration for your home that balances all of the **LEVERS** used.

STEP 2. IMAGINE SOLUTIONS

Think about all of the possible ways you can make a mobile. Decide on a theme for your mobile such as interesting shapes, colors, or pictures. How many **LEVERS** would you like to use?

STEP 3. PLAN POSSIBLE SOLUTIONS

Plan how you want to make your mobile. Sketch your design to show where your **LEVERS** and fulcrums will be and where you will attach your construction paper shapes.

STEP 4. CREATE YOUR MOBILE AND TEST IT

1. Cut lengths of string to match your design.
2. Cut shapes out of construction paper. Begin with two shapes. Use a small piece of tape to attach the string to the shape.
3. Tie the other end of the string to either end of a rod. There should be one shape attached to each side of the rod. Tie another string to the middle of the rod as a hanger. You have created a **LEVER**.
4. The place where the hanger string attaches to the rod is the fulcrum. Slide the fulcrum toward the larger shape until it balances. Use a small piece of tape to secure the locations of the fulcrum and shapes once they are balanced.
5. Continue making balanced **LEVERS**, and then attach them to the other **LEVERS** and rebalance them to build a multi-layer mobile.

STEP 5. IMPROVE YOUR DESIGN

Do you need to change anything to make your mobile balance? Can you add any other interesting features?

CHALLENGE #6: MOBILE

REFLECT: GUIDE YOUTH THROUGH THE REFLECTION PROCESS

See a solution here: <https://go.umd.edu/msolution>

Was balancing the **LEVERS** harder or easier than you predicted it to be?

What was the most difficult part of creating a mobile? How did you use **PROBLEM SOLVING** to overcome it?

APPLY: CHALLENGE THE YOUTH TO APPLY WHAT THEY'VE LEARNED TO OTHER PARTS OF THEIR LIVES

What are other examples of **LEVERS** in our world?

Think of another project you've done that incorporated art and science.



REFERENCES:

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