

1st Grade Engineering Daily Challenges

Engineering Challenge Ideas: You can jump around from challenge to challenge - you do not need to go in order. I recommend doing at least 1 a week, but you are welcome to do more or less.

You can use materials from the white engineering WFH bags or you can add other materials you have at home. The goal is to keep kids problem-solving and having fun with different materials and supplies. Starting with Challenge #2, we will share work using Padlet (like a virtual bulletin board). There is a different Padlet for each challenge.

Week of 3/30-4/3 Challenge 4:

Musical Instruments

Create at least two musical instruments that make different types of sounds. You can build different types of maracas, harmonicas, or try your own idea.

PART ONE:

Recommended videos/readings to develop background knowledge:

1. Navigate to the [Scholastic Learn from Home website for Grades 1-2](#) and Navigate to Week 1, Day 3: Physical Science: Sound and Music.
2. Click on "TAKE ME THERE" to listen to the book "Zin! Zin! Zin! A Violin!" read to you. Once you follow the link, click on "Watch this Story".
3. Practice reading yourself using the book "All About Sound!". To get there, click on "Read the Book" on the same page.
4. [Watch this video about sound in the world around us.](#)

PART TWO:

**Step by step directions with photos are in this [K-2 Music Slideshow](#)

**[Google Drive folder with step by step photos also available here](#)

Build at least one maraca. Choose a filling that will fit

Materials Needed:

Maracas supplies:

- rice, beans, pebbles, or sand
- several plastic easter eggs (or other small box that can close securely)
- tape
- several plastic spoons

Harmonicas supplies:

- tongue depressors (popsicle sticks)
- several small rubber bands
- several large rubber bands
- tape
- notecards/cardstock

**Step by step directions with photos are in this [K-2 Music Slideshow](#)

**[Google Drive folder with step by step photos also available here](#)

**In this folder, you will find:

- photos of maraca steps
- Harmonica instructions in PDF format

<p>inside an Easter Egg (or another small box that you can seal).</p> <p>PART THREE: Build at least one harmonica. Experiment with different rubber band lengths.</p> <p>PART FOUR: optional! Invent your own instrument, or try to create a drum or guitar. How can you make vibrations and sound?</p> <p>Test by: Play your instruments! -Does they make a sound? -What part of them vibrates? -Does they make a high-pitched sound? Or a low-pitched sound? -Can you change the sound that they make? -Can you invent your own instrument?</p>	
<p>Week of 3/23-3/27 Challenge 3: Gliders Create a paper airplane that can fly fast, then try creating another paper airplane that can fly far. You can build as many different designs as you want!</p> <p>**Use the “Glider Instructions” sheet to help you! Follow the steps outlined there for more support.</p> <p>Experiment with adding weight to your paper airplane using clothespins, paper clips, or pennies. Try using notecard paper, printer paper, and newspaper.</p> <p>Does anything in your paper airplane change?</p> <p>Test by: Throwing your glider from a tall height (like by standing on a chair) and also from your regular height. What was the same? What was different?</p> <p>Did you add weight to your glider? At the nose or the wings? Did it change how your glider flew?</p> <p>Share Project Photos and Ideas by uploading to our Class Padlet!</p>	<p>Materials Needed:</p> <p>Take a look at my supplies tray here!</p> <p>For the body of the airplane: -notecards -printer paper -newspaper</p> <p>-scissors -tape</p> <p>For adding weight: -clothespins -paper clips -pennies</p>
<p>Week of 3/23-3/27 Challenge 2: Design an animal!</p>	<p>Materials Needed: Craft material examples:</p>

<p>Choose a habitat:</p> <ul style="list-style-type: none"> -rainforest -ocean -desert -intertidal zone -Arctic -grasslands <p>Discuss this habitat with your family. Here are two videos to explore from Wild Kratts:</p> <ol style="list-style-type: none"> 1. Habitats Overview 2. Animal Adaptations Overview <p>Then, design a new animal that could survive in this habitat.</p> <p>Your animal needs to have:</p> <ul style="list-style-type: none"> -a body -a way to feed itself -a way to protect itself. -one moving part <p>Be sure to use some craft materials, recycled materials, and at least two attachment strategies (paperclips, tape, staplers, clothespins, etc).</p> <p>Test by: Use a notecard or paper to write down:</p> <ol style="list-style-type: none"> 1. Name of Animal 2. How it eats 3. How it protects itself 4. Post this to our K-2 Class Padlet! 	<ul style="list-style-type: none"> -playdough -golf tees -toothpicks -pipe cleaners -felt/fabric -cotton balls -straws <p>Recycled material examples:</p> <ul style="list-style-type: none"> -toilet paper rolls -small plastic containers or lids -cereal boxes -cardboard <p>Attachment strategies:</p> <ul style="list-style-type: none"> -paperclips -tape -staples -clothespins -hot glue -glue sticks -brass fasteners
<p>Week of 3/16-3/20 Challenge 1:</p> <p>Design a Distance Learning mascot for yourself. A mascot is usually an animal, person, or thing that gives you good luck and makes you feel excited about an upcoming event.</p> <p>Test by: placing your mascot on your mantle or in a special place in your house. Use it over the course of the next couple days to see if it gives you joy!</p> <p>You can see Mascots designed by our K-4 students here!</p>	<p>Materials Needed:</p> <p>You may use any of the materials in your white engineering WFH bag, and add other things you have at home. Some things that might work well:</p> <ul style="list-style-type: none"> -playdough -golf tees -toothpicks -pipe cleaners -felt/fabric -cotton balls -straws -toilet paper rolls -small plastic containers or lids

<p style="text-align: center;">Week of April 13th-17th</p> <p>Challenge 5: Sock Puppet Plays!</p> <p>Design at least 2 sock puppets that give you joy and put on a show with them! Your sock puppets need to have</p> <ol style="list-style-type: none"> 1) eyes 2) mouth 3) hair/hat (some kind of head flair) 4) an outfit <p>PART ONE -</p> <p>Recommended Warm-Up for Inspiration (optional if you don't/can't download app)</p> <ol style="list-style-type: none"> 1. Download the Sock Puppets app (free on app store but only available for iPad and iPhone) 2. Explore the sock puppet options and create at least one digital puppet show to get inspired 3. In the Sock Puppets App, you can experiment with different types of sock puppets, choose different backgrounds, and get ideas for props! You can even record a script voiceover! 4. This is an optional step, but I recommend it because it might give you silly ideas to try out on your own! <p>PART TWO: Sock Design/Blueprint</p> <p>-I hope you were inspired by the Sock Puppets app. Now it's time for your own designs!</p> <p>-Draw a blueprint/sketch for your first sock puppet. Make sure that you incorporate eyes, a mouth, an outfit, and hair/hat. I recommend thinking of a "character" before you start. For example, is your sock puppet a pirate adventurer? Is he or she an animal? If your sock puppet a space alien?</p> <p>-Once your sketch is ready, gather your necessary supplies. I recommended some supplies in the column to the right, but you can use what you have at home.</p> <p>PART TWO: Sock Creation!</p> <p>-</p> <p>PART THREE: Write a Script</p>	<p>Materials Needed:</p> <p>Recommended App: Sock Puppets App by Smith Micro Software (available in App Store for free; but is only compatible with iPad and iPhone)</p> <p>As always, you are welcome to use material substitutes from your house!</p> <p>Basic materials:</p> <ul style="list-style-type: none"> -Socks (old ones work best!) -tacky glue or hot glue work best; glue dots (in your engineering bag) will also work! <p>Decorative materials:</p> <ul style="list-style-type: none"> -Felt/fabric -Googly eyes -Buttons/gems -Pebbles or sticks -Pipe cleaners -knick-knacks that can be decorations <p>Potential extension:</p> <p>*If you are interested in trying sewing, this is a great project to experiment with sewing since you can sew the felt and fabric onto the sock puppets. There is NO pressure to do this, just a possible extension if you're up to it!</p>
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<p>PART FOUR: optional - create a puppet theater background</p>	
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