Hands-On Learning

Week 8

3rd Grade

Independent Study Packet

Educational Activities to Create, Problem Solve, Move, and Have Fun

Education.com

Table of Contents

This Activity Packet is a collection of open-ended learning challenges that encourage your child to create, build, design, and move. For these activities, you will need materials like paper, tape, markers, and scissors. You will also need other materials, but feel free to substitute with what is around your home.

We recommend allowing your child to choose 2-3 activities per day. Each packet contains a selection of "choice boards," and these can be used over multiple days. You may also want to review the packet together and make a week long plan using the planner included, or your own.

Brain Breaks can be used throughout the week to support your child in moving their body when they need to take a break from focusing on academic work. The STEM Design Challenge: Brainstorm and Reflection Sheet can be used to help your child dig deeper into the open-ended learning challenges.

WEEKLY PLANNER

Name: _____

Month: _____ Days: _____ - _____ Year: _____

MONDAY

To do list:

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Course activities:

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TUESDAY

To do list:

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Course activities:

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WEDNESDAY

To do list:

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Course activities:

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THURSDAY

To do list:

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Course activities:

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FRIDAY

To do list:

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Course activities:

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WEEKEND ACTIVITIES:

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Name _____ Date _____

Brain Breaks

What are brain breaks? Young learners often struggle to stay focused for long periods of time. Brain breaks are short periods of time when we take a step away from the routine work we are doing. They are quick and effective ways to energize and refresh our thinking.

★ Research indicates that brain breaks improve concentration and relieve stress. They increase productivity and provide children with opportunities to develop their social skills and creativity through kinesthetic activities. They also boost brain function! Use these short brain breaks to help refocus before getting back to work.

1. **Dance Party:** Put on some fun music and dance!

2. **Keep It Up:** Get a beach ball and keep it from hitting the ground. Add an additional ball to make it even more fun!

3. **Jump Counting:** Have your child count while jumping with each count. Challenge them by counting by twos, fives, or tens!

4. **"Head, Shoulders, Knees, and Toes":** Use a movement song like this one to get your child moving. For added fun, see how fast you can go! This is a great one for young learners.

5. **Freeze Dance:** Similar to the Dance Party brain break, this one incorporates listening skills. When the music stops, your child must freeze and hold their position until the music begins again.

6. **Physical Challenges:** Engage your child in the classic challenge of rubbing their belly, and patting their head. Another version to try is to grab your nose with your left hand, and grab your left ear with your right hand.

Name _____ Date _____

Brain Breaks

7. **Race in Place:** Have your child stand up and run in place. On your signal, your child will get back to work.

8. **Simon Says:** Play this oldie but goodie to see how well your child can follow specific directions...but only if Simon Says!

9. **Rock, Paper, Scissors:** Teach your child to play this fun, quick game and see who wins! Best out of three.

For another approach to brain breaks, try these:

- **Drawing or coloring**
- **Mental math:** Give a sequence of instructions for learners to follow while doing math in their head.
- **Invisible pictures:** Have your child draw an invisible picture in the air and try to guess what it is.
- **Story starters:** Begin a story for one minute and let your child finish the story on their own.

Name _____ Date _____

STEM Design Challenge
Brainstorm and Reflection Sheet

STEM design challenges are prompts that encourage learners to build something new for a specific reason or purpose. They include ideas from science, technology, engineering, and mathematics.

Directions: Complete this worksheet to help you think about your creation during your design process. Write down information or use check marks to show you have finished the step.

1. **Plan:** Sketch or write about what you will create.

What is the challenge?

Materials:	**Ideas:**

Blueprint: Sketch what your creation will look like.

2. **Create:** Build your creation based on your plan.

3. **Play**: Try out your creation. Swap with another person so they can try it too. Ask them what they would change to make your creation better.

Name _____ Date _____

STEM Design Challenge
Brainstorm and Reflection Sheet

4. **Adjust:** Make changes to your creation if you need to.

What changes did you make? Why?

5. **Share:** Show off your creation! Draw a picture of your finished design.

… and Reflect: Jot down notes about what you will share.

What worked for you? What was a challenge you had during your design process? What did you learn? How did you make changes based on what you learned?

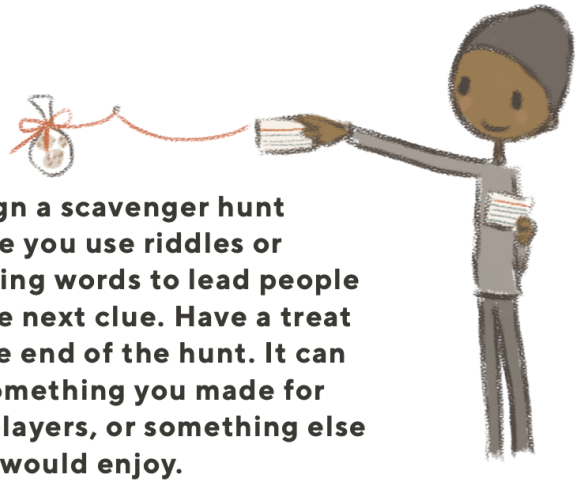
Name _____ Date _____

At-Home Activity Choice Board

Directions: Choose one or more activities to complete at home.

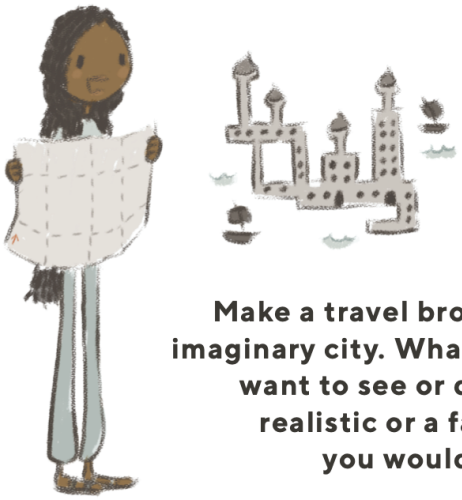
Take a walk around the block and imagine what is a bird's view of your neighborhood. Look on Google Maps in Satellite mode to envision the bird's view. Then draw a map of your neighborhood, from a bird's perspective.

Create an indoor competition. How many events will you have? What tools do you need? How long will it last? Establish the rules and expectations of the competition, gather the supplies, and set-up the fun. Take pictures or a video to capture the competition!



Design a scavenger hunt where you use riddles or rhyming words to lead people to the next clue. Have a treat at the end of the hunt. It can be something you made for the players, or something else they would enjoy.

Make a game to play with other family members with objects you have around the house. Write down the directions for the game, and be sure to include how to win!



Make a travel brochure for an imaginary city. What will people want to see or do? It can be realistic or a fantasy place you would like to visit.

Draw a chalk game board outside. It can be as simple or as complicated as you can imagine. How many players will you have, and what are some tricks to win faster?

Name _____ Date _____

Create a Home Challenge Course

Staying close to home doesn't mean you can't get moving! Use this fun physical activity to encourage your child to move their body in new ways while testing their endurance! Regular physical activity supports healthy growth and development, while also improving balance, coordination, and strength. Designed for children in third through fifth grade, this activity guides you to create a simple home challenge course that the whole family can enjoy together. The brain releases endorphins during exercise that improve energy, mood, and even the quality of your sleep! Getting active at home can be a fun way for your child to burn some energy, get their heart pumping, and have fun!

What You Need:

- Index cards or blank paper
- Markers

What You Do:

1. Get out 5–10 notecards (or small pieces of paper).
2. On each card, write one of the following:
   - hop and share (name as many countries as you can)
   - sit-up
   - plank
   - reach up to the sky and down to your toes
   - balance on one foot
   - run in place
   - stretch
   - drink water
   - wall sit
3. Feel free to make changes to the list or add some of your own!
4. Place the cards in a stack, and explain to your child that they will be choosing one card at a time and completing the activity for the duration of a one-minute timer.
5. Set the timer for one minute and begin!
6. Support your child as needed (such as modeling how to do a modified push-up or sit-up).
7. Create a second set of challenges for your child to accomplish, this time focusing on different parts of the body (stretching muscles, gross motor movements, etc.) or using a different amount of time. You can even get the whole family involved for a friendly competition, or set up a circuit where each person performs a different activity and rotates around the circuit until everyone has completed each challenge!

Name _____ Date _____

Chest & Back Circuit

This upper-body workout routine will help children keep their muscles, bones, and joints in good shape at home, while also helping them get to know their own bodies and strength. Geared towards children in third through fifth grade, this chest and back circuit replicates actual gym exercises but does not require gym equipment. Children will use a bag and books to create adjustable weights, perform standing rows and push-ups, and even learn a bit about anatomy in the process.

What You Need:

- Backpack, duffle bag, or tote bag
- Books, towels, a water bottle, anything that has light weight and can be evenly distributed in your bag
- Reasonably open space
- Athletic shoes
- Water

What You Do:

1. Find an open space, outdoors or indoors, with nothing around that can be knocked over or that can hurt your child if they fall. Make sure they're wearing shoes! It's always best to be present to "spot" them in case they need help.
2. **Warm-up**: Have your child warm their joints up and get the blood flowing to their muscles with jumping jacks, arm circles, and upper body twists.
3. **Stretch**: Stretch to loosen those muscles up. Raise your arms straight out on either side of you like a "T" then slowly pull your arms back while keeping them straight, and squeeze your shoulder blades together to stretch your chest. Then, raise your arms straight up above you and hold your hands together. Slowly lean to one side, then the other to stretch your back.
4. Put a towel at the bottom of the bag to cushion it, then add in a book or two. You should always start with very light weight to ease your muscles into the lifts. Make sure the weight is evenly distributed throughout the bag.
5. **Standing row**: Stand with your legs shoulder-width apart. Holding the bag in both hands, bend your knees a little and lean forward with your arms straight down, shoulder-width apart so your hands are holding the bag in between and slightly in front of your feet. Make sure you keep your back straight throughout the exercise. Slowly pull the bag upwards to your chest. For the duration of the

Name _____ Date _____

Chest & Back Circuit

exercise, keep your elbows at your sides as you pull, or point them out sideways to work different back muscles. Repeat 10–15 times.

- Breathing tip: Breathe in, then breathe out slowly as you pull up, then breathe in again as you let it down.

6. **Push-ups**: Assume push-up position. You should be on the ground, hands shoulder-width apart, with your legs together, fully extended, and your toes on the ground. Alternatively, you can rest your knees on the ground instead of your toes. Slowly lower yourself to the ground by bending your elbows until they're at ninety-degree angles. Pause, then push yourself back up. For the duration of the exercise, keep your elbows bending outwards as you push, or tkeep them closer to your sides to work different muscle groups. Repeat 10–15 times.
   - Breathing tip: Breathe in as you lower yourself, then breathe out slowly as you push up. Do you notice any change in difficulty if you lower yourself slower or faster?

Have your child repeat these exercises 3-5 times. Don't forget to make sure your child stays hydrated! See if your child can feel each different muscle working with each exercise, and teach them the anatomical term for each one (standing rows with elbows out use latissimus dorsi; standing rows with elbows in use trapezius and rhomboid; push-ups with elbows out use pectorals and deltoids; push-ups with elbows in use pectorals and triceps). You can have your child guess which muscle is where on their body after they do the different exercises based on where they felt the workout.

Name _____ Date _____

Chore Obstacle Course

Staying at home doesn't have to stop your children from being active! This chore obstacle course will keep your child entertained and engaged, while also helping them improve their efficiency at everyday tasks. They might even get a taste for helping out around the house! This obstacle course is easily adaptable and can be repeated as many times as you need help around the house! For an added challenge, assign time reductions/increases based on the quality of work. For example, if the laundry is folded well, let your child subtract 10 seconds from their final time. Designed for second and third graders, this activity puts a fun twist on everyday tasks while keeping children active, productive, and engaged.

What You Need:

- Different chores that require different rooms, such as washing dishes, doing laundry, folding clothes, cleaning up their room, etc.
- Some disposable water bottles or recyclables and a trash can/recycling bin
- Pen and paper
- Painter's tape or something to mark spots on the floor
- Stopwatch

What You Do:

1. Come up with a list of chores for your child to complete. There should be one chore per room, so that your child has to move from room to room. These chores can be both ones your child is familiar with, and ones they've never done before.
2. Designate a start point, end point, and the path in between. Ensure there is some clear open space between the rooms for your child to do physical activities in. Also, make sure the path is not around sharp edges or anything that could be a hazard if your child falls or runs into something. If necessary, make a "no running between stations" rule!
3. Walk your child through each chore station and physical activity station (you can mark the stations with painter's tape if you like). The actual chores and physical activities can be changed to fit you and your child best! You can use the suggestions here or come up with your own.
4. Here is a sample chore obstacle course to get your started:
   - Start in your child's room. Begin the timer. Have your child start with 20 jumping jacks.

Name _____ Date _____

Chore Obstacle Course

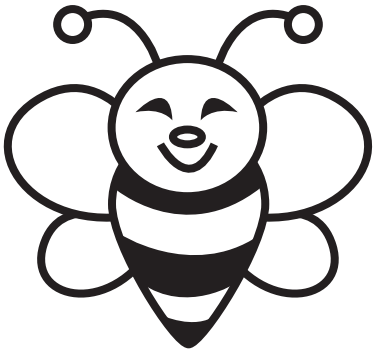
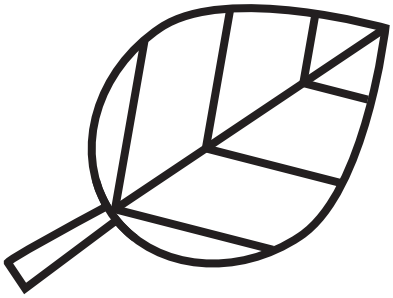
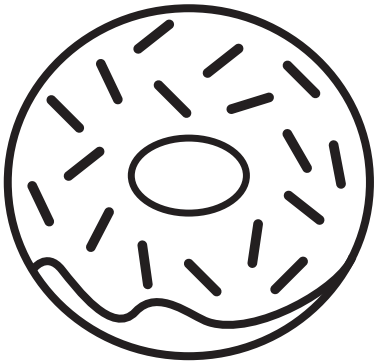
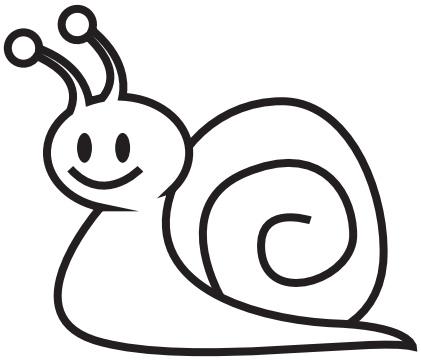
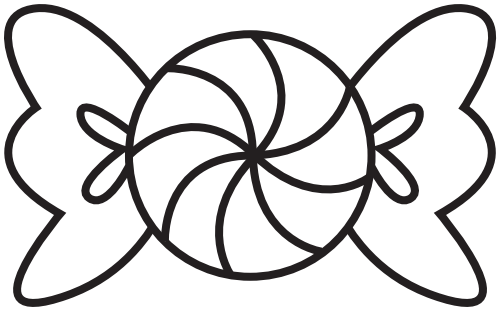
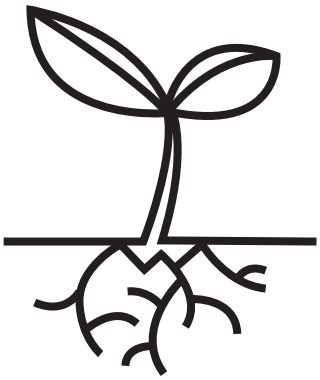
- Then they will grab their hamper, go to the laundry room, put their dirty clothes in the laundry machine, and start the washer. Then they will move to an open space and balance on each leg for 15 seconds. They can't leave that room until they do 15 seconds on each leg!
- Next, have them go to the kitchen and put away the dishes from the dishwasher. They will then move to an open space and complete 10 push-ups!
- Then, have them hop on one leg to another room to fold laundry. If they put their other foot down on their way there, they have to go back to the kitchen and start their hopping again! Once they've folded the laundry, they will do 10 sit-ups!
- Last, have them hop on the other leg back to the kitchen, and take out the trash! Once the trash can lids close, stop the timer.

5. Record the time it took them to complete the chore obstacle course. See if your child can improve on their time each time they do the course!

Name _____ Date _____

Chalk Walk Choice Board

Directions: Take a walk around the neighborhood. Choose one of these encouraging drawing options and draw it on the sidewalk in your neighborhood. Color in the affirmations on the choice board when you finish drawing them.

 Bee Kind	 We be-leaf in you!
 Donut give up!	 You snailed it.
 Daily Encourage-Mint	 We're rooting for you!

Name _____ Date _____

Build a Tunnel

If your child has ever ridden in the subway or metro, or gone on a long road trip, they have probably traveled through a tunnel. Tunnels are located underground and sometimes even underwater. Some tunnels are dug just to help transportation vehicles, but other tunnels have laboratories, or are created to observe underwater animals at aquariums.

Tunnels are dug underground for various reasons. Thousands of years ago, people dug tunnels to take out minerals from the ground. Farmers also made tunnels for irrigation, and before we had toilets, people made sewage channels to dispose of waste.

In this science and engineering activity, challenge your child to design and build a tunnel of their own. During their planning process, ask them to decide on a purpose for their tunnel and how it will help make people's lives easier. Encourage your budding engineer to imagine the location of their tunnel and how it can be helpful to people, as well as aesthetically pleasing.

What You Need:

- Access to the internet
- Variety of household materials, such as:
  - Play dough
  - PVC pipes
  - Toilet paper or paper towel rolls
  - Paper
  - Tape
  - Glue
  - Paint

What You Do:

1. Review the information from the introduction to this activity with your child.
2. Conduct a search online for additional facts and examples of tunnels.
3. Show pictures of various tunnels from around the world. Ask your learner if they can think of any tunnels they have seen before (such as at the playground or on road trips).
4. After a conversation about the purpose of tunnels and where they are located, ask your learner, "Can you build your own tunnel?"
5. Encourage your child to make a plan, thinking about materials they will use and what their tunnel may look like. They can even draw a picture of their proposed tunnel. To encourage thinking, ask your learner:

Name _____ Date _____

Build a Tunnel

- What will your tunnel look like?
- What materials will you use to make your tunnel?
- How much space will you need?
- What is the purpose of your tunnel?

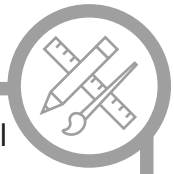
6. Give materials to your child, or let them choose what they will need for their tunnel.
7. Make sure you're available for questions or assistance while your child creates their design, but have them build the tunnel on their own. Encourage your child to refer back to their plan.
8. When they're ready, tell your learner to play with their new tunnel. It's important to remind them about the purpose they set for their tunnel. Ask your child:
   - Is your tunnel strong?
   - Is it able to do what you wanted it to do?
   - Can you think of things to make your tunnel better?
9. After testing out the design, ask your learner to think of ways they can adjust their design. For example, ask, "What changes can you make to the tunnel? What do you need in order to make adjustments to your tunnel?"
10. Allow time for your child to share their new designs. They can record a video explaining the tunnel and its purpose, or they can write an informational, how-to explanation about their tunnel. Make sure they take pictures to include in their writing.

Amplify this challenge! Choose one or more of the following questions to add a new level of difficulty to the challenge:

- Can you develop the landscape around the tunnel? People create tunnels usually through mountains, large hills, or underwater.
- Can you make your tunnel longer? The largest undersea tunnel in the world is 31.4 miles long with 23.5 miles underwater.
- Can you make your tunnel stronger to withstand the elements and storms?
- Can you create a tunnel using a different method? Research the different methods for creating a tunnel and try to make a new tunnel with a different method. Compare the new tunnel to your first tunnel. Which tunnel serves its purpose best? Why do you think that is?

Name _____ Date _____

Design Challenge: Make a Rube Goldberg Machine



In this design challenge, your child will make their very own Rube Goldberg Machine! They will use household reusable materials to make a complex machine that completes a simple task. This activity allows for your child to be creative with their ideas and follows the design thinking process of brainstorming, prototyping, and then redesigning to improve their machine.

What You Need:

- Any materials found around the house, such as:
  - Cardboard
  - Popsicle sticks
  - Cotton balls
  - Dominoes
  - Legos
  - Paper cups
  - Toy cars
  - Duct tape
  - Marbles
  - String
  - Paper towel tubes
  - Pencil and paper for notetaking and brainstorming
  - Scissors
  - Tape and/or glue

What You Do:

1. Explain the purpose of the Rube Goldberg Machine to your child. Explain that rather than simplifying a complicated task, these machines perform a simple task in a complicated way. Consider showing your child a video of Rube Goldberg Machines online. Ask your child what makes these machines different from others they have seen.
2. Ask your child to brainstorm tasks for their machine to complete. Some of these could be:
   - Turning on or off a light switch
   - Turning off an alarm clock
   - Squeezing toothpaste on a toothbrush

Name _____ Date _____

Design Challenge: Make a Rube Goldberg Machine

- Turning on a faucet
- Opening a phone app
- Popping a balloon

3. Have your child choose which task they would like to use for their machine.
4. Ask your child to collect various materials that they think might be useful in creating a machine to complete their chosen task. Remind your child that they will not have to use all of the items in their machine.
5. After collecting materials, have your child brainstorm different ways they can use their materials to complete their task. Ask them to write or draw several ideas on a piece of paper, and ensure that they remember the purpose of their machine: completing a simple task in a complicated and creative way.
   - Consider having your child design their machine backwards, working from the completion of the task itself and adding on more elements to the beginning of the machine.
6. After your child has finished brainstorming, ask them to choose the design they think will work best. Once again, emphasize the purpose of their Rube Goldberg Machine: to complete a simple task using a complicated machine.
   - This is an important step of the design thinking process because it teaches your child to prioritize the functionality of their design over personal preferences, and it prevents them from getting too emotionally attached to one design.
7. Once your child has decided on a design, they can start building. Be sure to supervise and help out wherever is needed.
8. After your child has finished building their machine, it's time to test it!
   - If your child's machine works, congratulate them on creating a functioning Rube Goldberg machine. Ask your child which parts they could change to make a more complex machine, or ask them to create another one of their designs and compare the two machines.
   - If your child's machine does not work, ask them what they think went wrong. Encourage them to return to the brainstorming phase and redesign their machine until it successfully completes their task.

Name _____ Date _____

Design Challenge: Gumdrop Structures

In this activity, your child will use gumdrops (or a material such as clay or play dough) and toothpicks to build structures that complete various design challenges. Your child will be given free building time as well to explore the materials before beginning the challenge. They will then be asked to build off of what they've already created in order to complete the activity.

What You Need:

- Gumdrops (or any other soft candy like jelly beans or fruit snacks, play dough, modeling clay, etc.)
- Toothpicks
- Book, full water bottle, or other item (to be used as a test weight)
- Ruler or tape measure
- Pen and paper for brainstorming and note-taking

What You Do:

1. Give your child 10 gumdrops (or handful of clay or play dough formed into small balls) and 20 toothpicks to start. Allow them to explore the materials by asking your child to build whatever they would like.
2. After allowing your child to build freely for a while, ask them to take some notes on their creation. Ask your child to write down the height, width, and appearance of their structure. Then, ask your child how much weight they think their structure can hold. Test their idea by placing something heavy such as a book or full water bottle on their design.
3. Now, read the following story to your child.
   - Birdee would like a new play structure and she needs your help to make one! She loves colorful, sweet-smelling gumdrop candies, so that's what she would like you to use. She knows that a play structure just built out of gumdrops would not be very stable, so she thinks toothpicks are a good material to help support the structure. Help Birdee to build a fun and stable play structure using gumdrops and toothpicks.
4. Ask your child to brainstorm ways in which they could change their current creation or build something new entirely for Birdee. For example, ask your child to build a structure that can hold a few books, or a structure that is taller than two feet.
5. After your child has finished brainstorming their design, ask them to choose one of their ideas to build. Make sure to remind your child of the overall goal of their design.

Name _____ Date _____

Design Challenge: Gumdrop Structures

- This is an important step of the design thinking process because it teaches your child to prioritize the functionality of their design over personal preferences, and it prevents them from getting too emotionally attached to one design.

6. Now it is time for your child to actually build their design! Give your child room to test and create on their own, but help out if they need assistance.
7. Once your child has finished building, help them to test their creation.
   - If their design completes the challenge, congratulate them on their success.
   - If your child's design does not successfully complete their challenge, ask them what they think went wrong. Have your child go back to the original brainstorming and prototyping stages. Ask your child to redesign their structure and continue brainstorming and prototyping until their design is successful.
8. To finish the activity, ask your child a few final questions.
   - What did they learn during the initial exploration of the materials?
   - What different types of structures worked or did not work in each challenge?
   - What was the most challenging part of the activity? What was the most fun part?

Name _____ Date _____

Tackle a Tinfoil Painting

Etching dates back to the 5th century, made famous by artists like Albrecht Durer. Also called intaglio, etching on metal is typically done by covering a metal plate with a waxy coating and then carving a picture into the plate. The plate is then dipped in a special acid called mordant, eating away at the metal that's not protected by the wax and creating indentations that allow the metal plate to be inked and printed. Instead of bringing hazardous chemicals into your home, your child can explore this ancient art technique with the help of some tinfoil, black paint, and the end of a paintbrush!

What You Need:

- Tinfoil
- Scissors
- Tape
- Cardboard
- Black tempera paint
- Dishwashing detergent
- Large paintbrush
- Toothpicks, paintbrushes, and craft sticks for making marks
- Piece of colorful construction paper

What You Do:

1. Do some quick research to learn more about etching with an internet search of Albrecht Durer or intaglio printmaking.
2. Invite your child to cut a 6" x 6" piece of tinfoil using a ruler and scissors. They can use some small pieces of rolled tape placed on the back corners to secure the tinfoil to a piece of cardboard.
3. Have them get out the black tempera paint and a brush. Before they get painting, squeeze a drop or two of dishwashing detergent onto their tinfoil.
4. Encourage your child to use a big brush to evenly distribute the black paint mixed together with the dishwashing detergent all over the tinfoil.
5. While they're waiting for the paint to dry, have them brainstorm ideas for their artwork and create a sketch to use when etching. While they're drawing out their ideas, discuss how they can use cross-hatching to create shading and depth within their etching! Cross-hatching is using lines drawn closely together in one direction and then layered with another set on top to create changes in tones. Have them practice using a pencil.
6. It's etching time! Offer your child several mark-making implements of various sizes, such as toothpicks, the ends of paintbrushes, or tongue depressors.

Name _____ Date _____

Tackle a Tinfoil Painting

7. Have your child "scratch" their design into the dried paint, using the different-sized implements to create lines in various sizes.
8. Once your child has finished, they can carefully remove the tinfoil from the cardboard and mount it on a colorful piece of construction paper!

Name _____ Date _____

Over the Rainbow

Who needs the weather to cooperate when you can craft your own rainbow? This arts and crafts activity is a great way to teach your child about the art of creating texture by way of layering and strategic use of materials. It will also allow your child an opportunity to artistically express their own interpretation of rainbow order!

What You Need:

- White watercolor paper
- Tissue paper (in a variety of colors as selected by your child, cut in strips about 1" wide)
- Cotton balls
- Scissors
- Glue stick

What You Do:

1. Ask your child to draw and cut out the shape of a cloud on white watercolor paper. Encourage them to make the cloud as large as they can.
2. Have them glue fluffed-out cotton balls, one at a time, onto the cloud. Try to cover every part of the cloud so no paper can be seen.
3. Flip the cloud over and ask them to begin gluing strips of tissue paper to the bottom of the cloud so that they hang in strips from the base of the cloud. Encourage them to place them in rainbow order, but allow for variation and creativity. To alter the lengths of the strips, have them adhere some of the strips higher up and some lower down until the entire base of the cloud is covered.
   - Note: As you glue the tissue paper strips along the base, try layering the strips for a more interesting look and depth in the final product.
4. When you're done, flip the cloud back over and you're ready to hang your one-of-a-kind rainbow!