growing outdoors

Activity #10:
Splat Drop!
Critical Thinking, Problem-Solving, Engineering Practices
(Preparation: 5-10 minutes to gather materials / Activity Time: 20-30 minutes)

What Will You Need?
(Feel free to be creative with your materials! These are just a few suggestions out of the many, many materials that can be used!)

1. **A mixture of engineering materials such as:**
   - **Cardboard**
   - **Construction Paper**
   - **Pipecleaners**
   - **Bubble Wrap or Packing Peanuts**
   - **Kid-Friendly Scissors**
   - **Tongue Depressor Sticks or Outdoor Sticks from the ground outside!**
   - **Tape or Glue**
   - **Washable Markers, Crayons, Colored Pencils, or Washable Paint for decorating**

2. **An item that will "SPLAT" such as:**
   - **Water Balloon**
   - **One Egg**
   - **An over-ripe Tomato, Avocado, or other fruit**

3. **An area of the floor, driveway, or outdoor patio - a hard surface - that can get messy!**

4. **Clothing (especially shoes) that can get messy!**

5. **A** <u>stable</u> **chair (no rolling or spinning chairs, please), or a step-ladder**

6. **Creativity! Your student may need some guidance when thinking of how to use the materials, but everyone can bring their own unique and creative approach to the building process!**

Instructions:

What happens when an egg or something squishy falls on the ground? That's right... SPLAT! So how might we stop that from happening? In this activity, your job is to design and build an Anti-Splat protection device AROUND a splat-able object, like an egg, a water balloon, or even a tomato or similar fruit or vegetable that's just a little past its expiration date!

You will be thinking about your design, building your design, and testing your design! And of course, the best way to test the limits and effectiveness of your Anti-Splat Protection Device is by DROPPING it from increasing heights with the object safely inside.

RULE: Just like having your phone in a phone protector, you must be able to SEE the splat-able item inside of its protection, and the item must remain visible throughout the dropping stages. (The supervising Adult will make the final determination of whether the splat-able item is visible or not)

Once your Anti-Splat Device is designed and built around your splatting item, we recommend a series of different height drops to test its limits. Count out loud "1, 2, 3, DROP" and release with both hands at the same time, when you say, "DROP"

Here are our drop height recommendations:
(If you choose to use a chair or ladder, please review any weight limits, instructions, or warnings for your chair or ladder before using it for this activity)

1. Knee-High, feet on the ground
2. Waist-High, feet on the ground
3. Shoulder-High, feet on the ground
4. Arms extended above your head, feet on the ground
5. Kneeling or Standing on chair / Standing on the first or second step of your step ladder (PLEASE HAVE AN ADULT SUPPORT/STABILIZE ANY STUDENT STANDING ON A CHAIR OR LADDER)
6. Ultimate Height! Throw your device with the item inside as high up in the air as you can!

If your object SPLATS , that's okay! Now you know the limits of that design - see if you can think of a way to improve your design or even try a whole new design!

Some things to think about before you build - use your answers to help you with your design:

- Will my item be best protected by a material that is soft, or a material that is hard?

- What will happen if my item has room to move around or bump against the inside of what I've built?

- Have you ever seen anything that protects something else from falling or getting damaged? What did you notice about that protection?
  - Packages in the mail
  - Glasses cases
  - Helmets
  - Egg cartons and other food packaging

As always, please be sure to clean up any mess that you make and return any natural items to where you found them!