Amazing Construction

Science Explorers: Construction Exploration Stations

Science Category:

Engineering and Technology

Activity Goal:

Students explore construction tools and cause-and-effect relationships through a play-based science exploration activity.

Embedded Skill Targets:

Curricular Area	Learning Spectrum	
	Increased support needs	**Extended learning**
Social Communication and Play Skills	Sharing Turn-taking Imitating actions in play Following one-step directions in play	Imitating multiple-step actions in play Following two-step play directions Commenting with one or two words Answering questions

Materials:

Provided:

- Station signs
- Station icons

Needed:

- Large plastic bins or containers (4)
- Small containers (8)
- Timer
- Materials for construction exploration stations:
  - Cutting and rolling station:
    - Play-Doh
    - Play-Doh tools (rollers, knives, etc.)
  - Twisting and assembling station:
    - Toy nuts and bolts
    - Toy screwdriver
  - Hammering station:
    - Pegboard(s)
    - Pegs
    - Toy hammer or mallet
  - Measuring and building station:
    - Kinetic sand
    - Popsicle sticks
    - Pipe cleaners
    - Rulers
    - Scissors

Preparation:

1. Print, laminate, and cut out:
   a. Station signs
   b. Station icons (1 set per student)
2. Create four science exploration stations.
   a. **Measuring and building station:** Fill a plastic bin with kinetic sand. Add Popsicle sticks, pipe cleaners, and rulers.
   b. **Twisting and assembling station:** Place nuts in one container and bolts in another container. Set out both containers beside a toy screwdriver.
   c. **Hammering station:** Put pegs in a container and set them beside the pegboard(s) with a toy hammer/mallet.
   d. **Cutting and rolling station:** Place Play-Doh tools in a container, and set them beside the Play-Doh.
3. Place each station at a different table/area, and post the corresponding station sign above or on the table for the station.
4. Sort the station icons into the four science exploration stations, and place each set into a small container at the appropriate station. Each table should have a set of icons for the station that follows in the rotation (e.g., Place the icons for Station 2 at Table 1, the icons for Station 3 at Table 2, etc.).
5. Place the other small container on the table under or on the station sign.

   Note: This activity might create a mess. Use a clearly designated area that is easy to clean.
6. If, due to the number of students, more stations are needed, prepare an alternative activity for students to do while they wait for their turn with the exploration stations, and/or create multiple bins for each station.

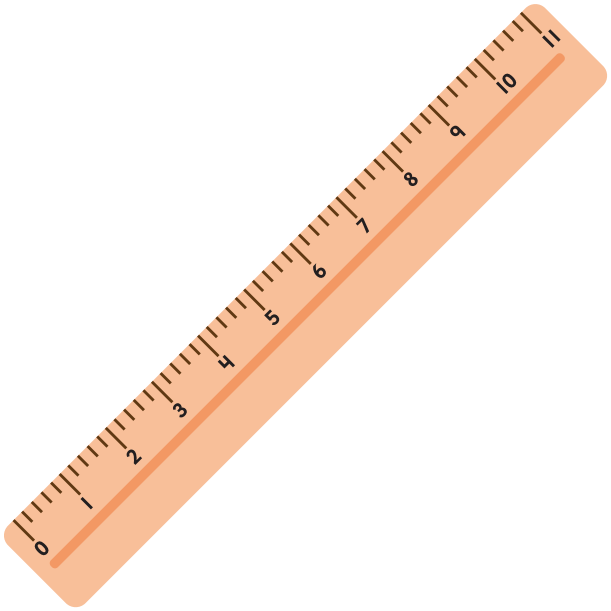
Helpful Learning Tool

- Review the Learning Differentiation Guide to individualize this lesson for each student's learning level.

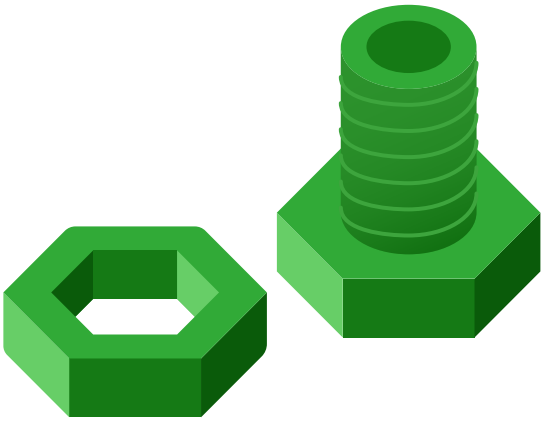
Instructions:

1. Demonstrate the activities at each station:
   - **Measuring and building station:** Model stacking, building, and measuring with the tools in the sand.
   - **Twisting and assembling station:** Twist the nuts and bolts together, and use the screwdriver to practice turning the screws.
   - **Hammering station:** Use the mallet to strike the pegs.
   - **Cutting and rolling station:** Use the provided tools to cut, roll, and squish the Play-Doh into different shapes.
2. Divide the class into groups of 2–3 students.
3. Transition each small group to a starting station. Set the timer for 5 minutes, and allow the students to explore the materials.
4. Encourage students at each station to engage in cause-and-effect exploration and observation:
   - Model simple actions appropriate for each station such as measuring, hammering, cutting, screwing, building, etc.
   - Encourage students to imitate your actions.
   - Give simple one-step directions such as, "Cut the Play-Doh," or "Measure the Popsicle stick."
   - Comment on your own actions and encourage students to make comments as well.
5. Once the timer goes off, hand the students at the activity area one of the station icons for the next station. Have them transition to the corresponding station and place their icon in the small bin under or on the matching station sign.
6. Repeat Steps 2–5 until students have explored all stations.

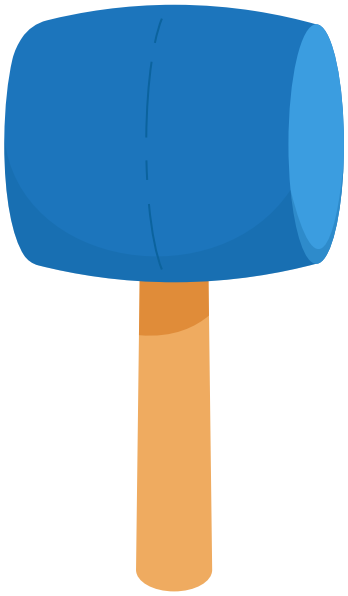
Measuring and building station



Twisting and assembling station



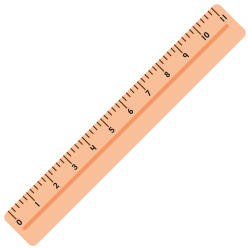
Hammering station



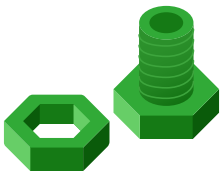
Cutting and rolling station

Station icons

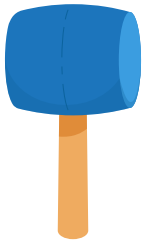
Measuring and building station



Twisting and assembling station



Hammering station



Cutting and rolling station