Preschool

Answer Key for Creating Bug Houses (3–5 years)

This handout provides sample responses to support discussions following video observations on how children engage in engineering and how educators use the M[5] Early STEAM Approach to support children's engineering experiences and problem-solving.



Video:
Creating Bug Houses (3–5 years)

Creating Bug Houses (3–5 years)– Audio Descriptive Version

Slide 24: Discuss: Engineering in Action

In what ways do children use engineering skills (for example, identifying problems, planning a solution, and testing and refining solutions)?

Possible Responses

- Children use images of different bug homes to inspire their designs. They also explore different bug homes they find outside.
- Children explore the problem of finding different ways to build houses for bugs. They encounter different problems as they build (for example, how to get the tubes to stay together). The educator helps children identify problems by asking, "Why do you think it is falling?"
- Children test solutions by using toy bugs and seeing how they fit within the homes the children build.

What other domains do children use to support their engineering process (for example, science, math, approaches to learning, language)?

Possible Responses

- Life science knowledge: children are developing an understanding of different animal habitats.
- Physical science knowledge: Children are developing an understanding of weight, balance, and stacking.
- Social and emotional skills: Children engage in collaboration as they build their insect homes collaboratively.
- Approaches to learning: Children demonstrate persistence as they continue trying to build their homes even when facing challenges such as a block falling down or the tubes not staying together.

Slide 31: Discuss: Supporting Children to Use Engineering Skills

Mutual Learning

In what ways is the educator responsive to children's abilities, interests, or lived experiences?

Possible Responses

- The educator encourages children to discuss the different types of bug homes they have explored previously. This builds on children's prior knowledge.

Meaningful Investigations

In what ways does the educator offer meaningful investigations?

Possible Responses

- This experience is meaningful because the educator connects children's building projects to real-life bug habitats they are learning about and exploring through first-hand experiences.
- The educator supports children to design their own bug house and create with materials of their choosing.

Materials and Learning Environment

In what ways does the educator provide materials and a learning environment that supports children to engage in engineering?

Possible Responses

- The educator provides images of different bug homes for the children to explore and gain inspiration from.
- The educator supports children to explore bug homes outside in their natural environment.
- The educator provides ample space for the children to create their bug homes in the open space on the floor.
- The educator offers a variety of materials for children to choose from. For example, she offers natural materials the children find outside, blocks, foam, cardboard tubes, tape, and other recycled materials. The materials are a variety of shapes, sizes, and textures, which supports children to build in different ways.
- The educator provides toy insects for the children to use as a way to test their structures to determine if the insects will fit and feel safe.

Mindful Vocabulary and Discourse

In what ways does the educator support children's science vocabulary related to their building of bug homes?

Possible Responses

- The educator uses open-ended questions to encourage children to identify and solve problems. For example, she asks, "Why do you think it is falling?" "Where do you think we need to put the tape?"
- The educator supports children's vocabulary by reviewing the names of different bug homes. For example, the children talk about a "beehive" when exploring the photos of bug homes.
- The educator encourages children to explain their structures. For example, she asks, "What part of the house is this?" and "What is that part of the house for?"

Multiple Representations

In what ways does the educator provide different ways for children to build insect homes?

Possible Responses

- The educator supports children to explore multiple representations of bug homes by offering them a variety of materials. For example, children create using natural and recycled materials and blocks.
- The educator also provides children with various examples of bug homes by offering photos of different real-world insect homes and inviting them to explore outdoors.

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