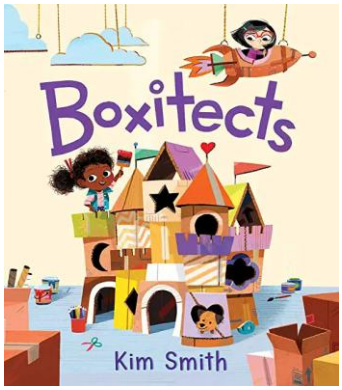
ETFO Webinar Series: Learning Invitation Sparks for Kindergarten

Lesson #1: Book Spark – Making: Inviting Learners to Wonder, Think and Create Using a Mentor Text

Overview: This is a spark for "making" that learners can engage in at the beginning of the year as they are developing a maker mindset and beginning to see themselves as makers.



Materials:

- The book *Boxitects* by Kim Smith
- Post-it notes and/or Google Jamboard
- Recycled materials
- Various classroom materials (e.g., LEGO, paper, tape, scissors, markers)

Minds on:

- Show learners some of the making items that are in the book (e.g., tin foil, egg cartons).
- Lead a discussion about what these items are and what they are used for. Ask: What else can you do with them?
- Read the text together. Ask: What kind of maker are you?
- Use post-it notes to document what kind of maker each learner is. Place the post-it notes on the whiteboard or a piece of chart paper. After all the learners have shared, ask them if they noticed any similarities in the types of makers identified during the sharing (e.g., two learners said they were "bakeologists"). Classify post-it notes according to these similarities.
- Alternate documentation idea: Use a Google Jamboard (https://jamboard.google.com/) to document learners' thinking if you have access to a projector and want to digitally document.

Action:
Have learners brainstorm something they can make using found materials in the classroom.

Guiding questions:

- What will you make?
- What materials will you use for your maker project?
- How will you connect or fasten items together?
- How will you share your creations with others? (Examples: Will it be on display? Will you want to take a picture? Will you want to present it to the class?)
- Once they have come up with their ideas, invite learners to begin making and creating. Be available to help scaffold their thinking and problem-solving as they go through their first making experience.

Reflection/Additional learning experiences:

- After learners have finished their maker projects, ask them to reflect on how they want to share their creations and honour their choices for sharing.
- Have a discussion about what went well for learners as well as any challenges they experienced and how they met them.
- As an educator team or as a class, reflect on the possibility of creating a maker space area in the classroom where learners could engage in maker projects at any time.

Extensions/Next steps:
For learners interested in continuing to develop their maker mindset with another maker project, have them make written/drawn plans before creating and have various materials placed around the classroom in various learning areas to encourage this (e.g., clipboards, paper, markers, etc.).

Lesson #2: Video Spark – Obstacle Course: Inviting Learners to Wonder, Think and Create Using a Video Invitation

Overview: This spark invites learners to create an obstacle course using found materials and to encourage spatial reasoning, prepositional language and sequential thinking.

Materials:

- Video: "Obstacle Course Building Challenge" by Michelle McKay
- Found materials in the classroom

Minds on:

- Talk about the positional language in the video (e.g., around, behind, on top of) and what these words mean and what they look like.
- Ask learners how they can show what these words look like using their bodies (e.g., by putting their hands on top of their heads, etc.).

Actions:

- Invite learners to create their own obstacle course using found materials around the classroom.
- Have learners brainstorm what materials and spaces they might use for their creations and how they might explain to someone the steps in their obstacle course.
- Have learners gather materials and create an obstacle course (either independently or in small groups).
- Learners can explore and investigate each other's obstacle course creations.

Guiding questions:

- How will people know where your obstacle course starts/stops?
- How will other people know how to use your obstacle course?
- How will you explain to someone how to use it?
- How did you decide what materials you to use in your obstacle course? (Example: Why did you choose to use that type of material to be a slide/bridge—what about it made it a good choice?)

Reflection/Additional learning experiences:

- Have learners add written words or number the steps in their obstacle course.
- Reflect on how learners could document their obstacle course and learning using technology (e.g., photos or videos on iPad, PicCollage, FlipGrid).

Extensions/Next steps:

- Integrate technology (e.g., BeeBot, Sphero, Dash/Dot) into the obstacle course for learners to code a bot through their obstacle courses.
- *Example of how to create an obstacle course using found materials and a Sphero:* Have learners create obstacle courses outside where they can physically engage in the learning with their peers.

Lesson #3: Photo Spark – Inviting Learners to Wonder, Create and Think About Math

Overview: This is spark invites learners to wonder and think about numbers and create various representations of a number using different materials and manipulatives once they have had experience exploring and understanding quantity (especially with the benchmark numbers of five and ten).

Materials:

- Various math manipulatives (e.g., Rekenrek, ten frame, counters)
- Markers
- Whiteboard/chart paper or some digital form of documentation (e.g., Google Jamboard)
- High-interest objects (e.g., lollipops or other candy)
- Photo of a bag of balls or an arrangement of 10 different balls on the ground (see photo prompts)

Photo prompt #1

Photo prompt #2

Minds on:

- Ask learners what they see in the photograph. Where have they seen these objects before? Have they ever used any of these objects before? Do they have any at home? If so, how many? What do they do with them?
- Put some high-interest objects (e.g., lollipops) in a clear container or jar. Ask them if they think there would be enough for everyone to have one? How many learners do they think would get a lollipop if we were to give them all out?
- Ask learners what the word “estimate” means? Talk about what it means to estimate. Estimate could mean a good guess based on what they know about quantity. (Note: educators should have some understanding of leaners’ prior knowledge and experience with numbers and quantity.)

Actions:

- Ask learners to make estimates about how many balls are in the bag in the photo.
- Record learner responses on chart paper (or have them record their responses) or on a Google Jamboard. Encourage learners to represent their understanding of quantity in any way they would like (e.g., numeric, pictorial, tally marks).
- Reflect on learner responses as a group and provide feedback to one another about their estimates (e.g., were they reasonable estimates?).
- Show the second photo of the balls on the ground or remove the 10 balls from the bag if doing it in person. Ask learners how many balls were in the bag. Ask them to explain how they figured out how many (e.g.,” I counted” or “I see five and five and know that 5+5=10”).

Reflection/Additional learning experiences:

- Ask learners which estimates were closest to the actual number of balls.
- Brainstorm all of the different ways that they can represent the number of objects in the bag (e.g., using their fingers, written words, ten frames, pictures).

Extensions/Next steps:

- Have learners create their own estimation challenges for one another to solve.
- Integrate technology into their estimation challenges by taking photographs that can be used to create a collaborative estimation challenge slideshow or book.