

Future Building!

Overview

This lesson plan will draw on children's imagination about what life might be like in the future and what kinds of human-made devices children might need. The lesson asks children to discuss and decide on an "invention" they can make for a child of the future. They will make a plan together and collaboratively draw a sketch of their invention on a white board or chart paper. Then they will build it!

Level: Advanced

Age Group: Grades 3 to 5

Main Goal: Stretch our creative thinking about what people might need or want to have in the future—then design and build a working model of that invention using Rigamajig.

Guiding and supporting play:

- Observe, observe, observe!
- Allow children to explore their own Rigamajig play ideas. There is no set formula for "right" or "wrong" outcomes.
- Children may produce a variety of Rigamajig ideas to meet the basic objectives of the lesson plan. No two creations or play sessions are alike. Be comfortable with letting children's play evolve.
- Let them make "mistakes" and problem solve together. (Celebrate mistakes as opportunities to improve their design!)
- Resist the urge to "fix" things for children and to show or tell children how to do things. Observe, and pay attention to children's ideas and actions. Support play in ways that focus children on their own ideas. Ask about what students are planning to do, what they are making, and what they can change to make their Rigamajig work better?
- Discover insights into children's creative thinking, and foster creativity!

Materials needed:

- Rigamajig Basic Builder Kit
- White board or chart paper and markers

Getting started:

"Imagine you are a child your age, living far in the future, say, the year 2050. What do you think life will be like for kids then? What kinds of things will they have? What will

they need? Work with your team to think of something future kids will enjoy, or something they will need to have. First, work together to draw your idea on the white board (or chart paper.) Once you have a plan, work together to build your fantastic invention for future kids!"

Optional: Divide the whole class into small teams, working together to create a future community. What would the future look like and what would the community need? Assign each team a different aspect of the community design.

While play is underway:

Observe with an interested and supportive attitude and, as needed, encourage problem solving thinking, creativity, collaboration, discussion, and questions.

Possible comments:

- What do you think kids your age will want or need in the future?
- Tell me about what you have in mind.
- That's an interesting idea! How can you do that?
- Have you ever seen anything like your invention before? Where?
- Would you like one of your friends to help you do that?
- I see something interesting in your structure, right there. How does that work?
- Can you think of any way to fix that problem? Can you think of a solution? Can you try a different way?

Vocabulary

Post some of the following words on a White Board, SmartBoard, sheet of chart paper or have the students make their vocabulary lists or posters of the key words. Encourage children's use of these words as they design and build. Encourage children to label the physical components of their creations.

- Needs
- Goal
- Design
- Build
- Evaluate
- Future

- Technology
- Problem-Solving
- Teamwork

What to look for:

- Watch for children's collaborations in their thinking and construction. Offer encouraging words about working together to build something.
- Pay particular attention to how children go about their construction process. Do they seem to have a specific goal? Or, do they seem more focused on learning about the properties of the materials and different things they can do with them?
- Pay attention to the language children use when communicating with you or other children about their construction process. What do their words reveal about their knowledge of objects, physical processes, design, and/or social collaboration?
- When children indicate they accomplished something, give them a chance to demonstrate their construction and how it works, and share with other children.

What if the children “stall”?

- Sit with the group and ask them to discuss their ideas for what future kids will need.
- What do they think life will be like in the future? What will kids need?
- How could technology help the kids of the future? How could it work?
- Ask them to make a list on paper or whiteboard of the important features they want to include in their invention. Can they agree on those features?
- Ask what could be the first step (or the next stop) in constructing what they want, and what each of them can do to contribute.
- Reinforce that any future invention is OK, it's whatever they want to do that will help kids of the future!
- Building something and then ask children to join you in the exploration. Pick up a few pieces and put them together for children to see. Don't be afraid to model taking a risk, exploring, or changing an initial idea.

Wrapping up & reflecting:

- The team can make a presentation of their invention. What do they think kids will need in the future? What was their goal? What did they design and build? How does it work? Did they need to change anything about their plan while they were building?

- Take photos of the construction process, if the children seem interested in recording what they did. Children may then write captions for the images.
- Make a video of the children's process, from beginning to end, including planning.
- They can edit how the process is shown and add a narrative!
- Ask children to draw a series of pictures about how they made their construction (show the process, from beginning to end.) Ask them to write a caption for each picture, describing what was going on.
- Clean up time: Encourage children to put the Rigamajig pieces away in a neat and orderly way.
- If children are unable to finish their construction during a play session, offer the opportunity to leave the pieces together and finish building next time.
- Assign each student to write a short fictional story about a child their age living in a future time. What was their problem or need? How did they get their idea for an invention that would help? How did they organize their friends to help design and build the new invention? How did it work?
- Lead discussions with children, one-on-one, in small groups, as a whole class group, or between classrooms the school, reflecting about their experiences. Prompt examples:
 - Share something about your future invention. (Tell about it, show drawings, and/or read that you wrote; show project drawings on the smartboard.)
 - Read the story you wrote aloud to a group.
 - How did you think about what to make?
 - How did your group work together to build your future invention? What did each of you do?
 - I noticed when you were building you had a problem (describe what you observed). What did you do to solve that problem?
 - Would you like to work on your invention some more next time? What else would you like to do with it? What are your ideas for next time? What other problems could you solve using Rigamajig?
- Arrange for each group to share what they did with the whole class or with other classrooms, giving each child an opportunity to demonstrate or talk about their design and building process.

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