Overview

Iggy Peck loved to design buildings. He designed everything from towers to chapels to skyscrapers. If all of his designs were gathered together, it could create a city. In this lesson, students will learn about what features a building needs and what buildings are in their community. They will then design and build a building of their choice in order to collaboratively create a city.

Grade(s):  
P  K 1 2 3 4 5 6 7 8 9 10 11 12

Suggested Time Frame: Two to three Sessions

Standards

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
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<tbody>
<tr>
<td>K-2-ETS1-2</td>
<td>Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</td>
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<tr>
<td>SS.G.1.K</td>
<td>Explain how weather, climate, and other environmental characteristics affect people’s lives.</td>
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<td>SS.G.1.1-2</td>
<td>Construct and interpret maps and other representations to navigate both familiar and unfamiliar places.</td>
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<tr>
<td>RL.K-2.7</td>
<td>Use illustrations and details in a story to describe its characters, setting, or events.</td>
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<tr>
<td>SL.K-2.1</td>
<td>Participate in collaborative conversations with diverse partners about grade kindergarten-2 topics and texts with peers and adults in small and larger groups.</td>
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Objectives

At the conclusion of the lesson, students will know or be able to

- Identify what features a building must have to make it functional.
- Identify different types of buildings and their functions within a community.
- Collaboratively design and build a building out of boxes.
- Help create a map of their own city and one of a new, imaginary city.
- Apply their knowledge of maps to create the new city using their box buildings.

Key Terms

Architect – a person who designs buildings.

Engineering Design Cycle – steps engineers follow to design and build solutions to a wide variety of problems. The engineering design cycle helps engineers come up with the best solutions to problems.
Materials

- *Iggy Peck, Architect* by Andrea Beaty
- Photos of buildings in your community or generic ones
- Cardboard boxes of varying shapes and sizes such as cereal, shipping, shoe, gelatin, etc.
- Masking tape, tape, glue or glue sticks
- Optional: Newsprint paper end rolls (unused remainder of newsprint on a roll that can be purchased at very low cost or donated by newspaper companies) - this can be used to wrap the boxes for decorating.
- Colorful scraps of paper for windows, doors, and other features
- Other miscellaneous materials (i.e. sequins, pipe cleaners, pompoms, popsicle sticks or other material)

Procedure

1. Prior to the lesson, have an open space available for the city. Create a simple grid to place the buildings on.
2. Read the book *Iggy Peck, Architect* by Andrea Beaty. Ask the following questions.
   - What was Iggy Peck’s special interest?
   - What is an architect and what do they do?
   - What types of buildings did Iggy design and build?
   - What materials did he use?
   - Can those materials be used to build buildings that people will use?
3. Ask students to brainstorm why we need buildings. Have students name some different types of buildings.
4. Discuss as a class what features most buildings need in order to be functional (i.e. walls, doors, roof, floors, windows, sign indicating business or function, etc.) and why they are necessary.
5. Discuss the city where the school is located. Brainstorm the different types of buildings that are in the city, some that may be in other towns, and what they are used for.
6. Using graph paper and with the students input, draw a simple map of the city or the neighborhood where the school is located. Label all the buildings on the map.
Discuss how the location of the buildings is relevant to its function (i.e. businesses are grouped together, houses are in neighborhoods, schools are close to parks, etc.).

7. Introduce and discuss the Engineering Design Cycle.

8. Place students into groups. Show them the materials they will be able to use to build their buildings. Assign each group a building they are to build from the brainstormed list. Students should first sketch the building before they attempt to build it. All necessary features should be present in the sketch. Then, using the materials provided and the Engineering Design Cycle, the groups should build and decorate their buildings. Emphasis that they may need to go back and redesign their buildings if any problems arise (i.e. the box size they planned to use is gone, their structure is too high and is falling over, a door, window or roof is missing, etc.).

9. Have each group present their building to the class.

10. Using the graph paper that matches the simple grid created in step one, and with the students input, draw a map of a new city that includes the buildings the students just made.

11. On the simple grid, help students to use the map as a reference and place buildings in the appropriate location.

Extensions

1. Writing prompt – What is your passion/what would you like to be when you grow up? What do you think you need to do to become that? Draw a picture and/or write several sentences explaining this.

2. Students can design parks, roads, and other buildings to go in their new city.

3. Students can draw a map of their own neighborhood.

Considerations

For younger students, you can skip the map portion of the lesson.

Have a box supply drive ahead of time.

Assessments

Use or adapt the attached rubric
<table>
<thead>
<tr>
<th></th>
<th>Exceeds (3)</th>
<th>Meets (2)</th>
<th>Partially Meets (1)</th>
<th>Does Not Meet (0)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collaboration</strong></td>
<td>Worked well with others and discussed ideas in a fair, respectful, encouraging way and was considerate of the feelings of others.</td>
<td>Worked okay with others and discussed ideas in a fair, respectful way, but may not be encouraging. Considered the feelings of others.</td>
<td>Worked with others, but did not contribute a fair share of work OR was discouraging and did not consider the feelings of everyone.</td>
<td>Did not participate or discussed ideas in an unfair, disrespectful way.</td>
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<tr>
<td><strong>Discussion</strong></td>
<td>Student participated actively and contributed ideas to the class.</td>
<td>Student participated but only contributed one idea to the discussion.</td>
<td>Student paid attention, but did not participate or contribute ideas to class.</td>
<td>Student did not pay attention or contribute ideas to class.</td>
</tr>
<tr>
<td><strong>Building Design</strong></td>
<td>Building was very well built, included all features necessary, and was aesthetically pleasing.</td>
<td>Building included all features necessary.</td>
<td>Building was missing one or two of necessary features.</td>
<td>Building was missing three or more necessary features.</td>
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<tr>
<td><strong>Total N/9</strong></td>
<td></td>
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