# Lesson Plan Template

**Grade: 5th Grade**

**Subject: Science**

**Materials: Styrofoam cylinders, spaghetti noodles**

**Technology Needed:**

**Instructional Strategies:**

- ☐ **Direct instruction**
- ☐ Guided practice
- ☐ Socratic Seminar
- ☐ Learning Centers
- ☐ Lecture
- ☐ Technology integration
- ☐ Other (list)
- ☐ **Peer teaching/collaboration/ cooperative learning**
- ☐ **Visuals/Graphic organizers**
- ☐ PBL
- ☐ Discussion/Debate
- ☐ Modeling

**Guided Practices and Concrete Application:**

- ☐ Large group activity
- ☐ Independent activity
- ☐ **Pairing/collaboration**
- ☐ Simulations/Scenarios
- ☐ Other (list)
- ☐ **Hands-on**
- ☐ Technology integration
- ☐ Imitation/Repeat/Mimic

Explain:
Students will pretend to be little engineers by a structure strong enough to hold textbooks on top. Students will only be able to use spaghetti noodles and Styrofoam cylinders.

**Standard(s)**

5.1.1 Use an appropriate model (drawing, equation, computer program, diagram, or device) to convey scientific information.

**Objective(s)**

By the conclusion of the lesson, students will have created a strong structure by only using two materials to demonstrate their understanding of what it is like to be an engineer.

**Bloom's Taxonomy Cognitive Level: Create, Demonstrate**

**Differentiation**

**Below Proficiency:**

If there is a student who is below the level of the rest of the class, the teacher will be sure to pair this student with someone who is at a higher level in hopes this student will be of help and be able to guide the student on the right track.

**Above Proficiency:**

If there is a student who is above and beyond the other students, the teacher would pair this student with one of the below level students so this student could help the lower level student understand the task at hand.

**Approaching/Emerging Proficiency:**

If the student is very close to grade level or at the level of his/her peers, the teacher would also pair this student with someone who is on a higher level in hopes that by working with this student, they may become closer to grade level and understand the assignment better.

**Modalities/Learning Preferences:**

Within this lesson, the teacher will be using many teaching styles in order to teach to the variety of learning styles. The teacher will lecture for the auditory learners, there will be a visual for the visual leaners, and a hands on activity with partners for the kinesthetic leaners.

**Classroom Management- (grouping(s), movement/transitions, etc.)**

Students will be moving around the classroom when getting into partners but this should be quick and quiet. If the class begins to get too loud during work time, the teacher will use the "high five" classroom management sign to get the students attention and ask them to lower their voices. To avoid any kind of conflict, the teacher will draw sticks to place students into groups.

**Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)**

-Students will sit quietly at their desks and listen to the lecture and directions
-When asked to move to their partners, students will be quiet and quick and ready to listen to further directions
-Students will be on task when working in groups
-During large group, students will only talk with their hand is raised and they are called on

| Minutes | Procedures |
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| **1 Min** | **Set-up/Prep:**<br>Teacher will get all the materials out and ready before class begins |
| **15 Mins** | **Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.)**<br><br>"Class, what is an engineer?" Students will raise hands and shout out what they believe an engineer is or what they do. "Today we are going to pretend we are little engineers! Who can tell me what an engineer does?" (engineers are people who designs and builds structures). Wait for someone to raise their hand and say the answer. "Great job! Yes, engineers are people who design and build certain kinds of structures. Today we are going to pretend we are engineers and build a very strong structure. You can only use spaghetti noodles and Styrofoam cylinders. Your goal is to make your structure as sturdy as possible because we will be testing how strong it is by putting some of our textbooks on top! Here is what you are going to want your model to look similar to." Teacher will show the class the model she made. "As engineers, you need to come up with the best way to build your structure and figure out how you're going to make it sturdy enough to hold textbooks." Be sure to have students make their spaghetti into a shape or design rather than pocking them all over the place. Example, shape of a triangle, square, or circle. Ask the class which shape they think would hold the most books. |
| **20 Mins** | **Explain: (concepts, procedures, vocabulary, etc.)**<br><br>"Now that we know our tasks and what engineers do, let's get started! I am going to pair you up into groups of three. One person from each group can come up and grab the materials you need." Teacher will get groups together and get all materials passed out. Teacher will walk around the room and be sure students are on tasks and see how their work is going. |
| **10 Mins** | **Explore: (independent, concreate practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)**<br><br>"Once everyone has their structure together, we are going to test it out by adding our textbooks to it to see which group can hold the most textbooks." Once everyone is done, students will begin to test their models and declare a winner. |
| **5 Mins** | **Review (wrap up and transition to next activity):**<br><br>Have students clean up their spots and put away the materials while letting them know this is the kind of thinking engineers have o use every day, "The type of thinking we used to make our prototypes is the type of thinking engineers have to use on a daily basis." |

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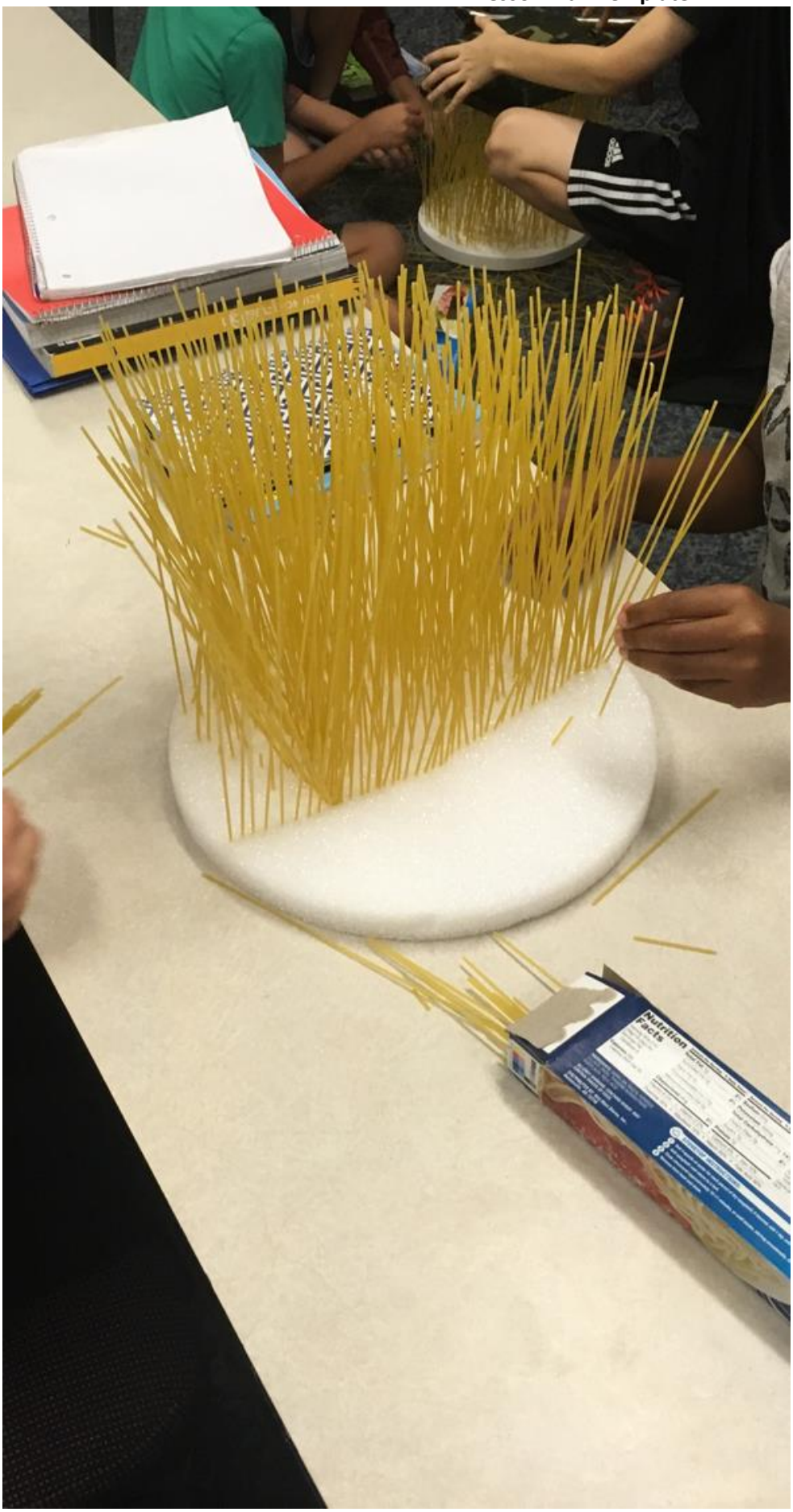
| **Formative Assessment: (linked to objectives)**<br>**Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.**<br><br>Students will have time to ask any questions they have. Teacher will be walking around to see how they are working and if they are completing the task correctly. Before class is dismissed, students will write down what an engineer is and what they do which will be handed in before leaving as an exit slip. | **Summative Assessment (linked back to objectives)**<br><br>Students will be given a chapter test at the end of the chapter. |

**Reflection (What went well? What did the students learn? How do you know? What changes would you make?):**

**This lesson went great!! The students loved having the freedom to create their sturdy "tower". I did not give them any direction of exactly how their tower should look. I did show them my model and showed them how the textbook should be able to balance on top. The students came up with great ideas on how to build their structure! It amazed me some of the ideas they came up with. Some groups decided to break their spaghetti noodles so the structure was shorter which in the end made it much more sturdy. The students also really enjoyed having the opportunity to test out their structure by seeing how many textbooks they could hold without breaking it!**

**Lesson Plan Template**



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