** LESSON PLAN (2025)**

**Candidate’s name:** Thu Trang Nguyen

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| Grade/Class/Subject: | Kindergarten/ADST | School: | Uplands Elementary School |
| Date: | Tuesday, February 11, 2025 | Allotted Time: | 35 minutes |
| Topic/Title: | Building boats using aluminum foil/paper/popsicle sticks and testing their ability to carry marbles before sinking | | |

1. **LESSON ORIENTATION**

**Key resources:** [Instructional Design Map](about:blank)

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| *Briefly, describe purpose of lesson, and anything else to note about the context of lesson, students, or class, e.g. emergent learning needs being met at this time, elements of focus or emphasis, special occasions or school events.* |
| This lesson provides a comprehensive ADST experience for kindergarten students, building boats using aluminum foil/paper/popsicle sticks and testing their ability to carry marbles before sinking by integrating design thinking, hands-on construction, and scientific testing. Through the process of construction and testing, students will develop a better understanding of floating and material properties. This lesson can enhance students’ fine motor skills, helping them reflect on the outcomes, what worked or didn't work, and building a mindset of continuous improvement. |

1. **CORE COMPETENCIES**

**Key resources:** [https://curriculum.gov.bc.ca/competencies](about:blank)

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| **Core /Sub-Core Competencies** *(check all that apply):* | *Describe briefly how you intend to embed Core Competencies in your lesson, or the role that they have in your lesson.* |
| 🗹 COMMUNICATION – Communicating  🗹 COMMUNICATION – Collaborating  🗹 THINKING – Creative Thinking  🗹 THINKING – Critical Thinking  🗹 THINKING – Reflective Thinking  🗹 PERSONAL AND SOCIAL – Personal Awareness and Responsibility  🗹 PERSONAL AND SOCIAL – Positive Personal and Cultural Identity  🗹 PERSONAL AND SOCIAL – Social Awareness and Responsibility | **Communication**:   * Communicating: In familiar settings, I communicate with peers and adults (Profile 2).   Students can participate in conversations about how materials of boats affect sinking and floating, listen and respond to others. Students can reflect on how to make their boats better and answer simple, direct questions about their findings and experiences.   * Collaborating: In familiar situations, I cooperate with others for specific purposes (Profile 2).   Students can contribute to the class discussion, cooperate with others to make predictions, and listen respectfully to the teacher and peers’ ideas. Students can work with their teacher or support their peers to build their boats using foil, paper or popsicle sticks to test the possibility of sinking/floating  **Thinking**:   * Critical Thinking and Reflective Thinking: I can use evidence to make simple judgements (Profile 2).   Students can ask questions, make predictions, and use their senses to gather information during boat building activity. Students can find some evidence and make predictions about which material that can make boats float. They can reflect on their work and experiences and tell others about their thinking or something they learned.  **Personal and Social**: |
|  | * Personal Awareness & Responsibility: I can show a sense of accomplishment and joy, and express some wants, needs, and preferences. I can sometimes recognize my emotions (Profile 1).   By choosing to engage in a boat building challenge, students can express what they want or need. They can recognize their feelings like happy, excited, surprised. They can explain what they like and dislike during their boat making process.  **Positive Personal and Cultural Identity**  *Profile 2: I am aware of different aspects of myself. I can identify people, places, and things that are important to me.*  Students can identify some of their attributes with some help. They understand that they need to focus and persevere long enough during the boat making activity. They can build a sense of accomplishment as they finish their boat and see it carrying some marbles.   * Social Awareness and Responsibility: I can be aware of others and my surroundings (Profile 1).   Students can tell when someone is sad or excited during class activities. They can help their friends and be kind. They are aware that other people can be different and have different ideas or designs from themselves. |

1. **INDIGENOUS WORLDVIEWS AND PERSPECTIVES**

**Key resources:** First Peoples Principles of Learning (FPPL); [Aboriginal Worldviews and Perspectives in the Classroom](about:blank)

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| **FPPL to be included in this lesson** *(check all that apply):* | *How will you embed Indigenous worldviews, perspectives, or FPPL in the lesson?* |
| 🗹 Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.  🗹 Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).  🗹 Learning involves recognizing the consequences of one's actions.  🗹Learning involves generational roles and responsibilities.  🗹 Learning recognizes the role of Indigenous knowledge.  🗖 Learning is embedded in memory, history, and story.  🗹 Learning involves patience and time.  🗹 Learning requires exploration of one's identity.  🗖 Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations. | * This lesson allows students to engage in hands-on boat construction. Students can reflect on their designs and outcomes, and understand the relationship between materials, design, and floating. Thus, this lesson can showcase the interconnectedness of learning experiences. * The lesson allows student collaboration and group discussions, highlighting the importance of sharing knowledge and respecting diverse perspectives as students may choose different materials. It reflects that learning is a holistic, experiential, and relational experience. * The activities encourage students to observe and appreciate how objects interact with water, an important element in many Indigenous cultures, reinforcing the respect for the natural world. * While observing the direct outcomes of their design choices, students also understand how their decisions impact the boat's ability to float and carry marbles. This reflects that actions have consequences. Given that, students can learn about consequences and responsibility. * Learning takes patience and time. Through experiments and reflection, students learn to be patient, understanding that improvement is an ongoing process. * As students can celebrate their achievement after the boat building and testing process, they will build their self-confidence, contributing to positive identity development in young learners. |

1. **BIG IDEAS**

**Key resources:** [https://curriculum.gov.bc.ca/](about:blank) (choose course under Curriculum, match lesson to one or more Big Ideas)

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| *What are students expected to understand? How is this lesson connected to Big Idea/s or an essential question?* |
| Students are expected to understand:   * Designs grow out of natural curiosity. * Skills can be developed through play.   This lesson is to engage kindergarten students in a fun boat-building activity, fostering their natural curiosity and helping them develop essential skills through play. They are encouraged to try out different materials without fear of failure, enhancing patience and resilience. While constructing and testing their boats, they will develop fine motor skills, problem-solving abilities, and collaborative skills. |

1. **LEARNING STANDARDS/INTENTIONS**

**Key resources:** [https://curriculum.gov.bc.ca/](about:blank) (choose course under Curriculum)

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| **Curricular Competencies:**  *What are students expected to do?* | **Content:**  *What are students expected to learn?* |
| **Applied Design**  [Ideating](https://curriculum.gov.bc.ca/curriculum/adst/k/core)   * Identify needs and opportunities for designing, through exploration * Generate ideas from their experiences and interests * Choose an idea to pursue.   Making   * Choose tools and materials * Make a [product](https://curriculum.gov.bc.ca/curriculum/adst/k/core) using known procedures or through modelling of others * Use trial and error to make changes, solve problems, or incorporate new ideas from self or others   Sharing   * Decide on how and with whom to [share](https://curriculum.gov.bc.ca/curriculum/adst/k/core) their product * Demonstrate their product, tell the story of designing and making their product, and explain how their product contributes to the individual, family, community, and/or environment * Use personal preferences to evaluate the success of their design solutions * Reflect on their ability to work effectively both as individuals and collaboratively in a group   **Applied Skills**   * Use materials, tools, and technologies in a safe manner in both physical and digital environments * Develop their skills and add new ones through play and collaborative work   **Applied Technologies**   * Explore the use of simple, available tools and [technologies](https://curriculum.gov.bc.ca/curriculum/adst/k/core) to extend their capabilities | *Students are expected to use the learning standards for Curricular Competencies from Applied Design, Skills, and Technologies K-3 in combination with grade-level content from other areas of learning in cross-curricular activities to develop foundational mindsets and skills in design thinking and making.*  *Students are expected to learn the content related to Science:*   * properties of familiar materials * effects of size, shape, and materials on movement |

1. **ASSESSMENT PLAN**

**Key resources:** [Instructional Design Map](about:blank) and[https://curriculum.gov.bc.ca/classroom-assessment](about:blank)

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| *How will students demonstrate their learning or achieve the learning intentions? How will they know if they are proficient? How will the evidence be collected, documented and shared? Will you use* ***observation****s, have targeted* ***conversations****, or collect* ***products****? Mention any opportunities for feedback, self-assessment, peer assessment and teacher assessment. What tools, structures, or rubrics will you use to assess student learning (e.g. Performance Standard Quick Scale)? Will the assessments be* ***formative****,* ***summative****, or both?* |
| **Formative assessment:**   * Observation of participation and collaboration during the boat making activity and class discussions. * Evaluate the effectiveness of their boats through the number of marbles held. * Reflection after making boats: Students’ reflection on the questions: Which material do you think holds more marbles than others? What would you do differently next time?   **Summative assessment**   * A boat using paper/aluminum foil/popsicle sticks |

1. **DESIGN CONSIDERATIONS**

**Key resources:** [Instructional Design Map](about:blank)

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| *Make brief notes to indicate how the lesson will meet needs of your students for: differentiation, especially for known exceptionalities, learning differences or barriers, and language abilities; inclusion of diverse needs, interests, cultural safety and relevance; higher order thinking; motivations and specific adaptations or modifications for identified students or behavioural challenges. Mention any other design notes of importance, e.g. cross-curricular connections, organization or management strategies you plan to use, extensions for students that need or want a challenge.* |
| * Classroom management: provide clear expectations for handling water and objects to minimize mess and distractions. Review rules for good listening. * Safety considerations: the water tub needs to be stable and not overfilled. Remind students to handle objects gently and avoid splashing water. * Use a simple observation sheet to track the numbers of marbles that their boats can carry. * For advanced students: challenge them to redesign their boats after what they learned and tested. * For lower learners: provide extra support or ask advanced students to help.   **advanced learners:** Challenge them to design another boat or predict how many marbles it will hold before testing. |
| **Required preparation:** *Mention briefly the resources, material, or technology you need to have ready, or special tasks to do before the lesson starts, e.g. rearrange desks, book a room or equipment.* |
| * Set up a testing tub filled halfway with water. * Pre-cut materials (foil squares and paper), popsicle sticks (5 – 6 sticks per student), tape, glue. * Create visual examples of boats to help students design their own boats. * Student reflection sheets with prompts: What worked well about my boat? What would I change next time? (I will document students’ reflection during the class discussion). * Towels for cleanup |

1. **LESSON OUTLINE**

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| **Instructional Steps** | **Student Does/Teacher Does** *(learning activities to target learning intentions)* | **Pacing** |
| **OPENING:**  *e.g. greeting students, sharing intentions, look back at what was learned, look ahead to what will be learning, use of a hook, motivator, or other introduction to engage students and activate thinking and prior knowledge* | * Gather students on the carpet. * Review what students have learned about sinking and floating.   Ask: What do we remember about floating and sinking?  Which materials do you think will help a boat float.   * Show students examples of different types of boats. * Introduce: Today, we will have a fun challenge, using our creativity to create boats using aluminum foil/paper/popsicle sticks and testing to see how many marbles they can carry before they sink. * Ask students to go back to their seats. | 5 minutes |
| **BODY:**   * *Best order of activities to maximize learning -- each task moves students towards learning intentions* * *Students are interacting with new ideas, actively constructing knowledge and understanding, and given opportunities to practice, apply, or share learning, ask questions and get feedback* * *Teacher uses learning resources and strategic opportunities for guided practice, direct instruction, and/or modelling* * *Can include: transitions, sample questions, student choices, assessment notes (formative or otherwise), and other applications of design considerations* | **Building Boats (10 minutes)**   * **Give students instructions:** * Students can choose one material, aluminum foil, paper, or popsicle sticks (5 – 6 sticks pers student) to design and build their boats. * Encourage creative thinking: Your boat can look however you want, as long as it can float. * Set up the timer for 8 minutes to motivate students to focus on their boat. * Remind them not to give up even if it can be hard. * Circulate around the room to provide guidance and ask open-ended questions: Why did you choose that material?   **Testing Boats (10 minutes)**   * Bring students’ attention to the water-testing tub. * Call one student at a time to gently place their boat in the water. * Add marbles one by one, counting aloud, to see how many the boat can hold before sinking. * Encourage observations: * What do you notice about how your boat floats? * What happened when we added more marbles? * Keep record of student’s performance.   **Reflection (5 minutes)**   * Class discussion: * Which material worked best (holding the highest number of marbles)? * What would you do differently next time?   Allow each student to give at least one reflection as a formative assessment. | 25 minutes |
| **CLOSING:**   * *Closure tasks or plans to gather, solidify, deepen or reflect on the learning* * *review or summary if applicable* * *anticipate what’s next in learning* * *“housekeeping” items (e.g. due dates, next day requirements* | * Summarizing the lesson: Today we’ve brought together everything we learned about materials, floating, and sinking in a fun challenge. * Praise students: It is wonderful to see your creativity, determination, and problem-solving skills to create your boats. You all got grit. * Encouraging students to create a boat using different materials (paper, clay, foil, or foam) at home and try to predict how many marbles it will hold before testing. * Dry off boats and clean up. * Introducing the topic for Social Studies next week is Kindness and Friendship. | 5 minutes |

1. **REFLECTION** *(anticipate if possible)*

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| * *Did any reflection in learning occur, e.g. that shifted the lesson in progress?* * *What went well in the lesson (reflection on learning)?* * *What would you revise if you taught the lesson again?* * *How do the lesson and learners inform you about necessary next steps?* * *Comment on any ways you modelled and acted within the Professional Standards of BC Educators and BCTF Code of Ethics?* * *If this lesson is being observed, do you have a specific observation focus in mind?* |
| * **What went well in the lesson** * The class was excited taking the boat challenge at the beginning of the lesson. I allowed them to have choices of materials to make their own boat. * Although they never made tin foil boats before, most of the students who chose to make them were successful making their boats. * Counting marbles made the students more excited. They had a sense of achievement and pride after that. * The class learned the lesson of not giving up. They kept trying to finish their boats. At the end of the boat making process, everyone had their boat built. * I was able to hold the class discussion to summarize what the class could learn from the boat challenge. The students showed that they enjoyed the activity and were willing to try different materials to make boats next time. * I showed the beautiful and unique design of a student to the class. The students realized that they could improve their own design after learning from their friend. * I praised the class for their effort, emphasizing that the most important part is trying and working hard to build things. * I gave students a challenge to show their parents how to make boats or find different materials to build boats at home. * **What would you revise if you taught the lesson again** * I should show some examples of boats so that students know what they can do. * I would explain to the class that the round marbles cannot stay on the popsicle boat. I would prepare flat marbles for those boats. * I would hold my expectations consistently. Students will have to stay at their seats and raise hands to ask for help. * **How do the lesson and learners inform you about necessary next steps?** * I will need to explain that the round marbles cannot stay on the popsicle boat. * I will arrange time for the students who have not had a chance to test their boats to do it. I can encourage students to test their boats at home. * **Comment on any ways you modelled and acted within the Professional Standards of BC Educators and BCTF Code of Ethics?** * I understand that a boat challenge can engage students since they learn better through hand-on activities. * I provided scaffoldings to students since I value their success in education. * I encouraged the participation of all the students in the class, showing an inclusive classroom. * I worked with my coaching teacher to improve my lesson. I keep learning and attempt to improve my teaching practice. * **If this lesson is being observed, do you have a specific observation focus in mind** * I will try to manage the whole class to focus, work on their boats while still giving support to some students who need it. * I will focus on the discussion to recap what the students can get from the boat challenge. |

Some pictures of the boats made by the kindergarten students at Uplands Elementary School

**A small boat made of tin foil

AI-generated content may be incorrect.**

**A close-up of a craft

AI-generated content may be incorrect.**

A package of food on a table

AI-generated content may be incorrect.

**Rubric for ADST Lesson: Building a Boat and testing with marbles**

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| **Criteria** | **Emerging** | **Developing** | **Proficient** | **Extending** |
| **Creativity & Design** | Boat is simple or incomplete. | Some creativity in design | Boat design is thoughtful and creative | Boat design is highly creative and completed with unique features. |
| **Construction Skills** | Has difficulty assembling the boat; needs significant support. | Can assemble the boat with some support. | Assembles the boat independently using appropriate techniques. | Demonstrates excellent construction skills; uses advanced techniques. |
| **Material Use** | Limited use of materials; boat lacks stability. | Uses some materials appropriately; boat has basic stability. | Uses materials effectively; boat is stable. | Uses materials innovatively; boat is very stable and unique. |
| **Problem-Solving** | Needs guidance to overcome challenges during building. | Attempts to solve problems with some support. | Independently solves challenges. | Demonstrates creative and efficient problem-solving. |
| **Communication** | Struggles to communicate ideas. | Sometimes shares and communicates ideas but needs reminders. | Shares and communicates ideas respectfully. | Actively collaborates, shares ideas, and helps others. |
| **Reflection & Observation** | Limited ability to reflect on what worked or didn’t work in the construction process. | Can describe what worked and identify areas for improvement with support. | Reflects thoughtfully on the construction process. | Provides detailed reflections and suggests improvements. |