FRESNO STATE
Transportation Institute

Lesson Plan

MEASURE

LONGER OR SHORTER!!!

OVERVIEW

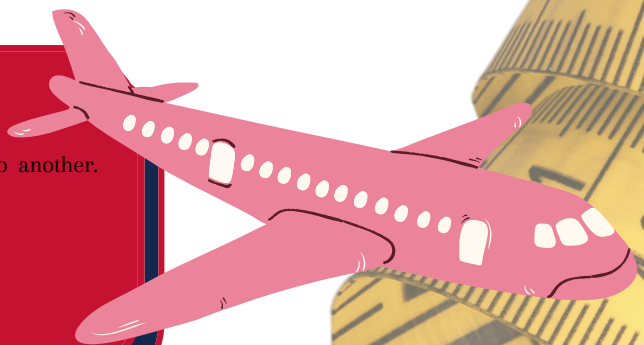
DURATION: 45 – 50 MINUTES
CATEGORY: TRANSPORTATION
NUMBER OF STUDENTS: 30 IN EACH SESSION APPROXIMATELY
ENRICHMENT COMPONENTS: D.I.Y., STEAM, TRANSPORTATION, ENGINEERING
QUALITY STANDARDS: CALIFORNIA STANDARDS OF LEARNING

LEARNING OBJECTIVE

STUDENTS WILL LEARN ABOUT THE DIFFERENT MODES OF TRANSPORTATION AND RELATE TO REAL-LIFE EXAMPLES. THEY WILL ALSO LEARN TO MAKE VARIOUS LENGTH ARRANGEMENTS, MEASUREMENT AS NUMBER SYSTEMS AND UNDERSTAND CONCEPTS OF PARKING. NB: - MAKE SURE TO LET THEM PLAY WITH THE TOYS EITHER IN GROUPS OR INDIVIDUALLY TO LET THEM TAKE PART IN THE ACTIVITY WHOLEHEARTEDLY.

ENGINEERING VOCABULARY

- **Transportation:** An act or action of transporting or moving from one place to another. Transportation can be related to goods, commodities, or people in general.
- **Basic modes of transportation:** Road - cars, Rail - trains, Air – airplanes
- **Length:** Distance measured between two points.



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STEPS FOR THE ACTIVITY

1. FSTI team members introduction.
2. Dividing students into equal groups.
3. Introduction to transportation and the activity by asking questions as follows.

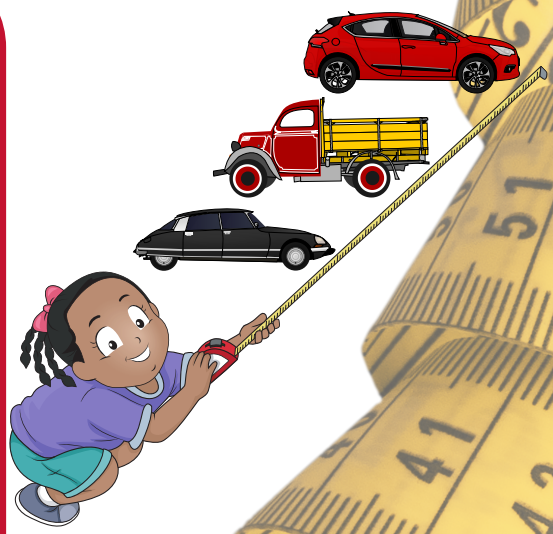
Basic questions about Transportation like: -

- What do you know about Transportation? Do you know what it means?
- How do you get to School? How do you go see your grandparents? How do you go for groceries?
- How do you think we can cross a river?

4. YouTube video (Optional) Link
5. Distribution of the toys into each group – each group gets approximately 15 toys that is 15 toys per bag
6. Demonstration of various toy arrangements and length measurements. (optional)
7. Asking kids to make similar arrangements and measure the lengths
8. Now that they have completed the activity, let the kids have some fun playtime with the set of toys and make sure they put them back to the bags provided to them
9. Giveaway for kids like stickers, tattoos, colorful transportation erasers, coloring pencils, etc. (a gift bag is also an option)
10. Completion assessment and survey for teachers

DISCUSSION/ENGAGEMENT QUESTIONNAIRE

- Identify the toys that you have?
- Differentiate between big and small toys? Why are they different?
- What is the difference between counting vs measuring?
- Why do we measure?
- If the position or orientation of the toy's changes will there be any modification in length?
- What happens if we add more and more toys to the existing lineup?
- How can we design the longest distance with the fewest number of vehicles?
- Why the lines are of different lengths?
- What are the different arrangements that we can make?
- Let them make a table of observations if possible. This is an excellent method to begin kids thinking about the various sorts of distance measurements available and how they relate to one another.
- What do you know about unit systems?
- What other modes of transportation do you know?
- Of all the arrangements you are trying to make, which ones have you seen in the parking lot?



SOCIAL EMOTIONAL LEARNING

- **Growth Mindset:** Young people believe that they can, through their efforts, grow in their intelligence and abilities.
- **Self-Awareness:** Young people can recognize and understand their identity and feelings.
- **Interpersonal Skills:** Young people use effective communication and collaboration skills to establish and maintain positive and productive relationships.
- **Social Awareness:** Young people have the capacity for empathy, can consider and appreciate the diverse feelings, perspectives, and personal contexts of others.

Credits: - Institute of Transportation Engineers & Fresno State Transportation Institute