

# DESIGN A HALF-TIME FLOAT

## OBJECTIVES:

Students will plan, design, construct, and test a model of a float that will securely hold a team mascot while the float rolls for 100cm.

Students will analyze the results of their test and develop ways to improve their model.

## PREPARATION:

- 1 printed mascot attached to a craft stick per group
- 1 planning/recording sheet per student
- Miscellaneous materials for float construction (chosen at the teacher's discretion): scissors, paper, straws, cardboard, chipboard, craft sticks, wheels (objects that can be used to roll the float), straws, string, masking tape

## CHALLENGE

**Today's Challenge:** You have been asked to design and create a float that your chosen team's mascot will ride in the game-day parade.

**Ask Students:** "What do we need to know in order to solve this problem?"

**Introduce the Engineering and Design process.**

Ask students: What are engineers? What do they do? Why do they need to work together?

**Teacher:** Provide time for the students to ask questions about the challenge. Share the following recommended criteria and constraints as questions are answered:

**Criteria:** The float you design must travel 100cm while carrying the mascot in an upright position.

**Constraints:** Students may only use the materials provided.



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## IMAGINE, CREATE, & TEST

The students will record the results from the model that their group designed.

The teacher and students will discuss why their model was/wasn't successful. They will discuss the success or failure using Newton's Laws of Motion, potential energy, kinetic energy, etc.

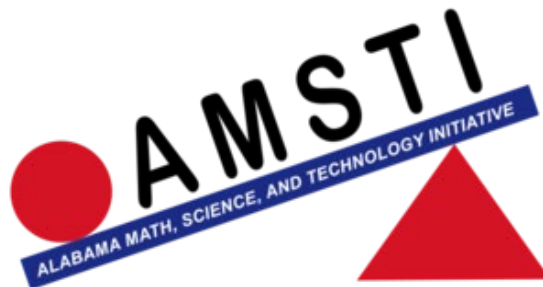
## IMPROVE

Each group will collaborate to discuss ways they can improve their model. If it worked, they can think about how they could make it work even better. If the test did not work, the group will evaluate the design and develop another plan.

## COMMUNICATE

On the recording sheet, students will draw a diagram of their final model.

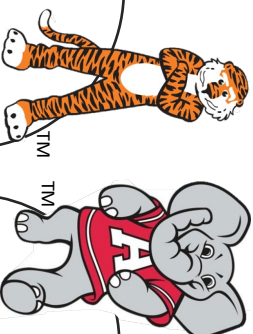
Using the writing frame on the recording sheet, students will write to describe their model. They will also explain if the model succeeded or failed and give a reason why.



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## OUR PLAN



## OUR FINAL DESIGN

### Materials we will use:

- |  |                                       |
|--|---------------------------------------|
| <input type="checkbox"/> paper               | <input type="checkbox"/> cardboard    |
| <input type="checkbox"/> chipboard           | <input type="checkbox"/> masking tape |
| <input type="checkbox"/> craft sticks        | <input type="checkbox"/> straws       |
| <input type="checkbox"/> wheels: type? _____ |                                       |

### How we improved our plan:

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