Aluminum Ship Competition

This activity supplements the Ag TransPORTation Ag-Bite #18

Build an aluminum cargo ship that will carry the most cargo and stay afloat. Compete with others in your class!

Materials:

- Use your scale model container from Ag TransPORTation
- Aluminum foil (pre-cut sheets are best)
- Dish pan, sink, or kiddie pool
- Agricultural commodities to use as cargo: almonds, grapes, raisins, tomatoes, rice, citrus, etc.

The Challenge:

- Work with a team. Build a foil cargo ship that will remain buoyant (stay afloat) and hold added weight.
- Float your ship in water (suggest a dish pan, sink, or kiddie pool).
- Plan how to load different commodities, weights, and shapes evenly on a ship.
- Add your team's scale model boxes, from the Ag TransPORTation challenge, to the ship.
- Gradually add California commodities (cargo) to the boxes – each time testing if the ship will float. Continue to add cargo to your boxes until the ship sinks or tips over. Record data.
- If your ship sinks or tips, redesign and test your new foil ship design. Repeat. Record changes and results.
- Compare your ship to others in the class. The design that holds the most cargo wins the competition!

Extension:

- Find the surface area and volume of an 8' x 8' x 40' (a x b x c) shipping container (surface area = 2ab + 2bc + 2ac; volume = a x b x c).
- Find the surface area and volume of your 1" x 1" x 5" scale model.