

weighty lifting

Your challenge is to...

... design and build a crane and see how heavy a load it can lift.

Research...

... images of cranes used for heavy lifting. How do they work?

Brainstorm! You might want to consider how you will...

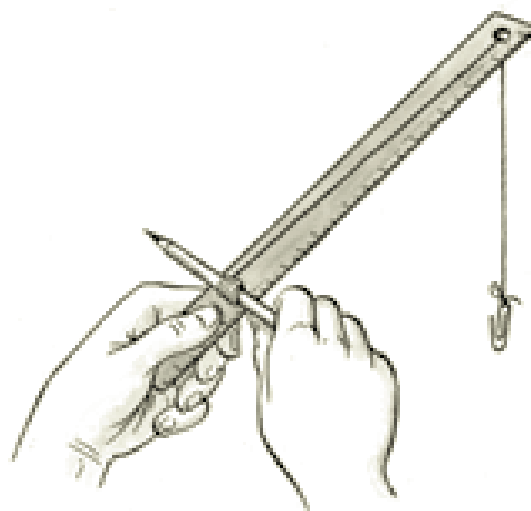
- make an arm.
- make a take-up reel and something you can use to turn it.
- make something to pick up your load.
- make something to carry your load.

And after that, how you will...

- stop a heavy load from pulling the arm to the left or right?
- wind and unwind the cable so the hook can go up and down
- secure the take-up reel so it doesn't slip?
- keep the crane's arm from breaking off the box as it lifts a heavy load?

Prototype

A picture is worth a thousand words, but an actual model can be a better place to start. Consider building this simple one at home before you come to class.



Avert disaster...

... by planning ahead. What's your crane's breaking point? What are you going to do if...

- the load rips the arm off the box?
- the arm crumples?
- the load pulls the arm to the side?
- the crank handle bends or slips?

A preview of potential materials

- cardboard box (shoebox size or bigger)
- corrugated cardboard
- paper clip
- paper or plastic cup
- 3 sharpened pencils
- scissors
- smooth string
- tape
- weights (e.g., pennies or marbles)
- (notice a ruler is not on the list)