

WORKSHOP EXTENSION ACTIVITY

Built by The Home Depot Kids Workshop

September Crane

Ages 5-12

CONNECT.

Picture the tallest building you've ever seen. How do you think the highest parts of this building were constructed? Chances are, it was built thanks to the help of a crane! The main job of a crane is to lift and move heavy things—both up and down and from side to side.

INVESTIGATE.

Just like your crane, most real-life cranes use a lifting hook to hoist loads off the ground. The exact type of hook depends on how much the load weighs and the type of material it is lifting.

But what would happen if your crane's lifting hook no longer worked? What else could your crane use to lift important materials?

You'll need:

- Your Crane
- A wooden block (or another load for the crane to lift)
- Master magnets
- Velcro strips
- Bird block netting
- Command Hook
- String
- Hobby wire
- Duct tape or painter's tape
- Super glue
- Crane Tester Chart (included here)

INNOVATE.

Once you have tested all of the materials, think about the trials and review the notes you just recorded. Then use the fourth column of the Crane Tester Chart to rate your ideas in order of what worked best: from 1 being the best to 4 being the worst.

Once you have selected the best solution, use the super glue to make it into a permanent new lift option. Be sure to also keep the hook in place, so the crane operator can choose between the original hook *and* your new idea!

Crane Tester Chart

Materials	+ What worked well? - What didn't work well? ** What would the crane operator have to keep in mind?	Ranking 1= Best 4 = Worst
Magnets	+ - **	
Velcro	+ - **	
Bird Block Netting	+ - **	
Command Hook	+ - **	

1. Place your load (i.e. the wooden block) and the magnets in front of you. Then brainstorm: How could magnets be used to help the crane lift this load? If it would be helpful, the tape, string, or wire may be used too.
2. Once you have an idea in mind, test it out and see how well the Crane is able to lift the load. Then use the Crane Tester Chart to jot down what worked well, what didn't work well, and what a crane operator might need to keep in mind if s/he actually used magnets to lift heavy loads.
3. Continue Steps 1 and 2 three more times, replacing the magnets with the Velcro, bird block netting, and Command Hook. How you use each of these materials to lift a load is up to you. Don't be afraid to experiment with different ideas!

