

# Planting with Precision

## Student Worksheet:

### Engineering Teamwork and Planning

You are part of a team of engineers given the challenge of developing a system out of everyday materials that can drop a pumpkin or sunflower seed every 15 cm over a 60 cm distance.

You have a wide range of materials to use and you can power your device in any way you wish as long as your hands do not touch the seed as it drops.

### Research Phase

Read the materials provided to you by your teacher. If you have access to the internet, consider different types of seeding machines and determine a design you think will work best in your classroom setting.

### Planning and Design Phase

Draw a diagram of the seeder design on the back of this paper, and in the box below make a list of all the parts you think your team will need to build it.

Materials you will need:

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### Presentation Phase

Present your plan and drawing to the class, and consider the plans of other teams. You may wish to fine tune your own design.

### Build it! Test it!

Next build your seeder and test it. You may share unused building materials with other teams, and trade materials too. Be sure to watch what other teams are doing and consider the aspects of different designs that might be an improvement on your team's plan.

### Reflection

Complete the reflection questions below:

1. How similar was your original design to the actual seeder your team built?
2. If you found you needed to make changes during the construction phase, describe why your team decided to make revisions.
3. Which seeder system that another team made proved to be the most precise? What about their design made it more precise?
4. Do you think that this activity was more rewarding to do as a team, or would you have preferred to work alone on it? Why?
5. If you could have used one additional material (tape, glue, a computer, sensors -- as examples) which would you choose and why?
6. How would you have to adjust your seeder if you were instead planting corn? How about orchids?
7. How did advances in equipment impact the "Green Revolution?"