Post-excursion resource

Innovations

The Early Years, Level A–D, Foundation – Level 2

Year

Kindergarten – Year 2

Level

The Early Years, Level A–D (Towards Foundation), Foundation – Level 2

Activity description

Students explore new innovations in technology that have improved and changed fruit processing, packaging and distribution. Using "questions stems", students expand their thinking to consider the advantages of using new innovations such as robots to improve fruit harvesting. Students design and create their own robot and share their new innovation with the class.

Topics

- Design and Technology
- Innovation

Materials required

- Worksheet: My Innovation
- Worksheet: My Innovation Model
- Pencils
- Coloured pencils/crayons
- Access to whiteboard or interactive whiteboard
- Whiteboard markers
- Lego or Meccano kits (to create a robot)

Instructions

1. Lead a whole class discussion using a question stem to gather ideas about innovation. Let the students know that harvesting apples, pears and stone fruit has traditionally been done by hand. Each piece of fruit is carefully picked, processed and packaged ready to be sold to the supermarkets and local grocer. It takes a lot of people power, time and effort to harvest fruit.

2. As students respond to questions, use a whiteboard/interactive whiteboard to display their responses. Build the question stems and invite students to write their ideas as the lesson progresses.

3. Question stems:
    - What does innovation mean?
    - Can you think of new technologies that have made our lives easier?
    - What new innovations do you think we will see in the future?
    - Do you have any new ideas about making fruit harvesting faster and easier?

4. Distribute the My Innovation worksheets to each student, either working in small groups or individually to complete. Encourage students to think of amazing new innovations that will make fruit harvesting faster and easier. Allow enough time for students to design and reflect and make changes as they progress.

5. Encourage students to share their innovation designs with other groups.

6. Distribute the My Innovation Model worksheets. Using the materials provided, students create a model of their innovation and evaluate their creation

Suggestions for assessment

Ability to participate in question stem activity, share thoughts and ideas with others and contribute to whole group discussion. Assess individual students' My Innovation and My Innovation Model worksheets.

Background information

Ripe Robotics

Ripe Robotics has developed a machine which picks apples, plums, peaches and nectarines with a specially designed suction cup, using artificial intelligence to analyse each piece of fruit for size, colour and quality.

Like a human picker, farmers pay based on the amount of fruit harvested, but will gain additional data-based insights collected by the machine.

"The machine takes pictures of every single piece of fruit it harvests, and farmers can use that data over time to help with disease detection, damage prevention and making decisions to increase yield and quality," said Ripe Robotics CEO and Co-founder Hunter Jay.

"As the robots keep gathering data and we keep upgrading them, they can expand from fruit picking into all these other tasks like thinning, pruning, spraying and on-farm sorting and analytics.

"We've spoken to growers all over Australia and New Zealand and they are desperate to make this happen faster."

The prototype, Eve, is currently picking apples on McNab Orchards in Shepparton, with Ripe Robotics raising a $2.8 million seed investment round to expand its commercial fleet to four machines.

Hunter said the company has two signed contracts worth up to $5 million per year, and expressions of interest from dozens of other growers in Australia, New Zealand, the US and Europe.

"We've now got the prototype machine autonomously picking a significant amount, so the next step is scaling up the fleet to the point of commercial viability," he said.

"With much less funding than our competitors, we have reached a similar stage with a machine that can be built and operated at a fraction of the price."

References: www.growag.com/highlights/article/artificial-intelligence-opportunity-ripe-for-the-picking
www.riperobotics.com

Worksheet: My Innovation

Name: **Date:**

Design a robot that can harvest apples from the tree. Don't forget to label all the parts!

My design looks like this

Why did you choose your design?

Who would benefit from this new innovation?

Worksheet: My Innovation Model

Using the materials provided, create a model of your new innovation.

Does your model look like your design?

Are you happy with your finished model?

Would you change anything?

Did you work by yourself or in a group?
If you worked in a group, how did you contribute?

Share your design and model with your class.