LEGO Education SPIKE PRIME Hand Sanitizer Dispenser

Designed for Ages 9-14yrs

Curriculum Connection:

Computational Thinking for Digital Technologies

Progress Outcome One	*Progress Outcome Two*	*Progress Outcome Three*	*Progress Outcome Four*	*Progress Outcome Five*
⊗	⊗	⊗	☐	☐

Designing and Developing Digital Outcomes

Progress Outcome One	*Progress Outcome Two*	*Progress Outcome Three*
⊗	⊗	☐

Aim:

Students will work in pairs or individually to create an automatic hand soap or sanitizer dispenser, using LEGO® Education Spike™ Prime.

They will need to go through the design process and practice each part of their code to ensure they are dispensing one pump of soap/sanitizer each time someone places their hands under the motion sensor.

Materials:

- ✓ 1 x LEGO® Education SPIKE™ Prime Core Set
  Code: 2549530
- ✓ 1 x Hand Sanitiser Pump (filled)
- ✓ 1 x Hand Sanitiser Pump (empty – to practice with)
- ✓ 1 x Device with the LEGO® Education Coding Software (downloadable)
- ✓ 1 x Copy of OfficeMax STEAM Design Process Template
- ✓ Extra Paper and pens for drawing/designing and recording what is happening throughout their making process.

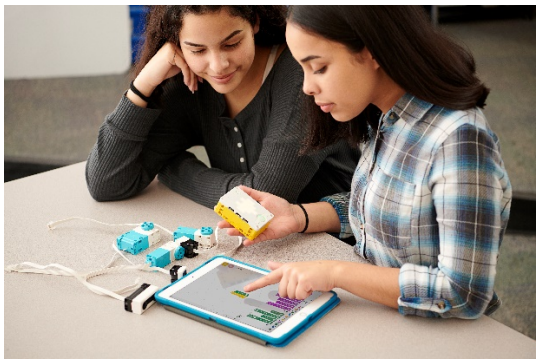
For more information please contact Natalie Tubman
Natalie.Tubman@officemax.co.nz 027 2454 620
OfficeMax

Lesson Outline:

1. Before you start, “warm up” by going through the mini lessons designed by LEGO® Education. Have students complete at least one task to get their creative brains switched on.

2. Begin the lesson by discussing why we are investigating this form of technology. What is happening at present that makes hand sanitization so important?

3. As a class, start to sketch out what they consider to be a good design for an automatic dispenser. Where have they seen this type of technology before? Airports? Bathrooms? Shop entrances? Etc.



4. Discuss whether any of their sketches have anything in common. For example: How much of our world is now automated? Compare this to the last decade, and the decade before that. How have these advances in technology changed the way people live? Why are we still fighting a virus even with this level of automation?

5. After the sketches have been analysed, show them the LEGO® Education Spike Prime Core Kit.

6. Give the students time to explore, test and create with the kit (they do not need to complete the design now, this step is just to get a feel for the materials).

7. Give the students a copy of the STEAM design process template. Ask them to complete the first 4 boxes.

For more information please contact Natalie Tubman
Natalie.Tubman@officemax.co.nz 027 2454 620
OfficeMax

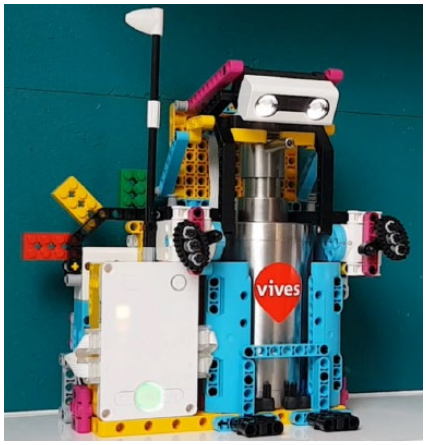
8. Give them time to do some research! They may find some ideas on YouTube or LEGO® Education website.

9. Ask the students to adjust their initial design according to what they learned in their research. Then, it's time to build! Remind them that they will not only need to build the machine, but code it too.

10. Remind the students to test as they go (this is where the empty pump bottle will come in handy). After each piece of code, they must test that it's doing what they need to.

11. REVISE and RE-CREATE. Ensure the students document their process as they work through their issues. Use boxes 5 and 6 on the template for this.

12. Lastly….check out each other's creations!



(Example created by Dimitri Dekyvere, Lego Studio Vives)

Supporting Documents:

LEGO® Education Curriculum Alignment Document
OfficeMax STEAM Design Process Template
Build instructions of LEGO® Innovation Soap Pump
LEGO® Education SPIKE™ App
LEGO® Education SPIKE™ Prime Set **Extra Resources**

For more information please contact Natalie Tubman
Natalie.Tubman@officemax.co.nz 027 2454 620
OfficeMax