ANNEDROIDS

EPISODE 103

REDUCE, REUSE, ROBOCYCLE

Watch as Nick, Shania, Anne and the androids build a lawn-mowing robot to mow Nick's lawn! Will they find a way to make it work?

EXPERIMENT SUMMARY

EXPERIMENT: Create a new robot that can mow Nick's lawn!

HYPOTHESIS: If we find the right parts, we can piece them all together and attach them to a motor and computer. Then, we can program the robot to move across the lawn.

METHOD: Draw a design of the lawn-mower robot, collect the proper materials, and attach them all to a motor and computer.

RESULT: We were able to find and reuse parts from the junkyard to build the lawn-mowing robot! After a few test trials, and some trial and error we were able to find the perfect solution to make the robot run smoothly!

CONCLUSION: One person's junk is another person's engineering solution! Reusing materials in creative ways can build amazing things!

EXTENSION ACTIVITY

Think about what types of robots you would like to build to be your household helper. Now, choose one of your ideas and try sketching the design of what your robot would look like. Once you are done with your sketch, get creative and try building your robot using recycled materials around your house!

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SYNOPSIS FOR TEACHERS/PARENTS:

In this episode, Nick's mom asks Nick to mow the lawn but he really doesn't want to. So, Nick, Anne, Shania and the androids come up with an engineering solution to build a lawn-mowing robot. They all work together to gather reusable materials from the junkyard in order to construct their robot. After building the robot, they conduct multiple tests and continue to fix any problems that arise so that the robot runs smoothly and does the job it is programmed to do!

This episode introduces children to the concept of engineering and what it means to be an engineer. In addition, it teaches children about reusing materials that they would normally throw out, to create cool inventions—like robots!

CURRICULUM EXPECTATIONS:

GRADE 5 SCIENCE: UNDERSTANDING EARTH AND SPACE SYSTEMS – CONSERVATION OF ENERGY AND RESOURCES

1.1 Analyse the long-term impacts on society and the environment of human uses of energy and natural resources, and suggest ways to reduce these impacts (e.g., turning off the faucet while brushing teeth or washing and rinsing dishes conserves water; reusing or recycling products, or using fewer products, conserves natural resources and energy).

GRADE 5 SCIENCE: UNDERSTANDING MATTER AND ENERGY – PROPERTIES OF AND CHANGES IN MATTER

1.1 Valuate the environmental impacts of processes that change one product into another product through physical or chemical changes.

1.2 Assess the social and environmental impact of using processes that rely on chemical changes to produce consumer products, taking different perspectives into account (e.g., the perspectives of food manufacturers, consumers, landfill operators, people concerned about the environment), and make a case for maintaining the current level of use of the product or for reducing it.

MULTIPLE CHOICE

QUESTION #1: WHAT IS 'ENGINEERING'?

A. Using scientific knowledge to design or build things.

B. Combining chemicals to form new substances.

C. Studying living organisms such as bacteria, animals and insects.

D. Taking things apart and throwing them away.

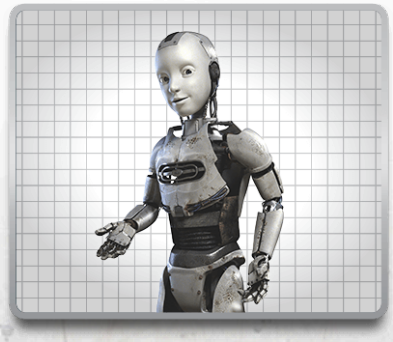
QUESTION #2: WHICH WORD MEANS TO FIND A NEW WAY TO USE TRASH SO THAT WE DON'T HAVE TO THROW IT OUT?

A. Reduce.

B. Remove.

C. Reuse.

D. Return.



QUESTION #3: IN ORDER TO FUNCTION, MANY ROBOTS AND ANDROIDS NEED TO BE CONNECTED TO A...

A. Wheel.

B. Wrench.

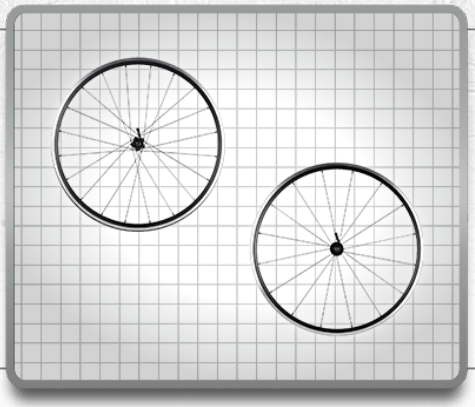
C. Motor and computer.

D. Set of tracks.

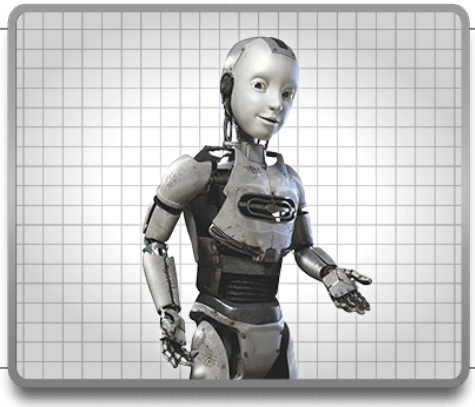
1. A 2. C 3. C

THIS OR THAT!

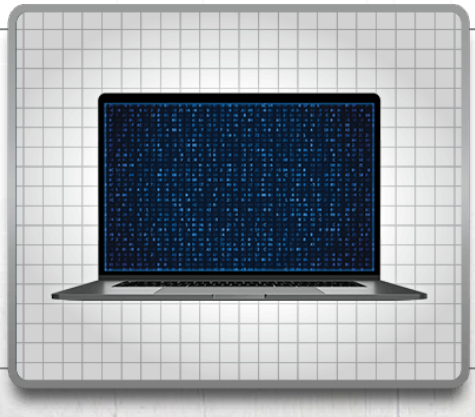
QUESTION #1:
Which of these objects can help trains follow their set route?

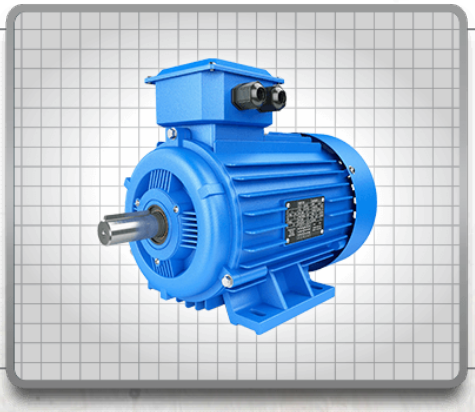


QUESTION #2:
Which of the following needs complex programming to work?



QUESTION #3:
Which of these is a motor?





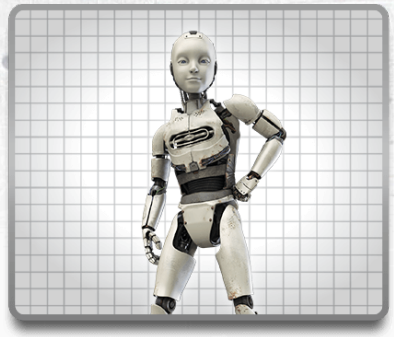
1. Tracks (Image 1). **2.** PAL (Image 1). **3.** Image 2.

TRUE OR FALSE

Grownup–fold this part over before handing to a child!

QUESTION #1:

Androids are programmed to think for themselves, robots are usually programmed to do one task.

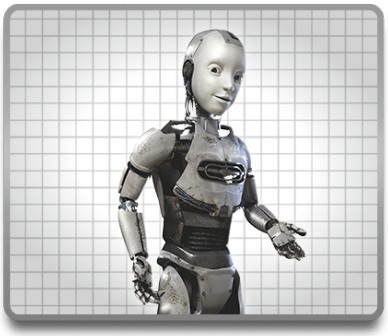


TRUE!

Androids are like humans and can make their own decisions!

QUESTION #2:

Robots don't have feelings.



TRUE!

Androids can learn feelings from humans, but robots cannot!

QUESTION #3:

A screwdriver can fit into a bunch of different screws.

FALSE!

Different screws need different screwdrivers!

COLUMN MATCH

Match each photo to their correct name.

1 HAMMER

2 SCREW-DRIVER

3 DRILL

4 WRENCH

A 

B 

C 

D 

1. C 2. D 3. A 4. B

SEARCH AND FIND

Can you find the following?

Screwdriver

Hammer

Wrench

Robo-mouse

Hand

Clean-o-bot