

Robot Dentistry:

Name: _____

Lesson 4

Date: _____

Dentistry- the treatment of diseases and other conditions that affect the teeth and gums, especially the repair and extraction of teeth and the insertion of artificial ones.

Dental Cleaning - the removal of bacteria, plaque, and tartar buildup from the tooth surfaces. It may also include other preventive services, including sealants and fluoride treatments.

Job Outlook - the likelihood that a selected occupation will be available and hiring in the future

Engage

Thinking about your last dental visit, how suited do you think a robotic arm is to do this job? Are there any advantages or disadvantages to using a robotic arm?

Answers will vary, but will likely reference that a robotic arm can move in ways the human hand cannot. It is possible that a robot arm has better precision and can perform dental cleaning or repairs better than a human. One disadvantage is that robotic arms are expensive.

How is a dental visit different than your everyday tooth care routine at home?

Answers will vary. Hopefully, students are at least brushing and flossing on a regular basis, but a dental cleaning uses specialized tools that trained dentists can use to remove buildup without scratching the surface of your teeth.

Explore

While robotic arms have a key role in today's lesson, we will explore the related career of Dental Hygienist. After watching the video, find the following information about Dental Hygienists:

Education needed to be a Dental Hygienists	Dental hygienists typically need an associate's degree in dental hygiene
Skills Needed to be a Dental Hygienist	Dental hygienists must be able to assess and evaluate patients and develop oral hygiene care plans.
Duties of a Dental Hygienist	Dental hygienists examine patients for signs of oral diseases, such as gingivitis, and provide preventive care, including oral hygiene.
What kind of work environment does a Dental Hygienist work in?	Nearly all dental hygienists work in dentists' offices
Average Salary in your state	Median pay is \$87,530 per year but will vary by state.
What is the job outlook for this career?	Employment of dental hygienists is projected to grow 9 percent from 2023 to 2033

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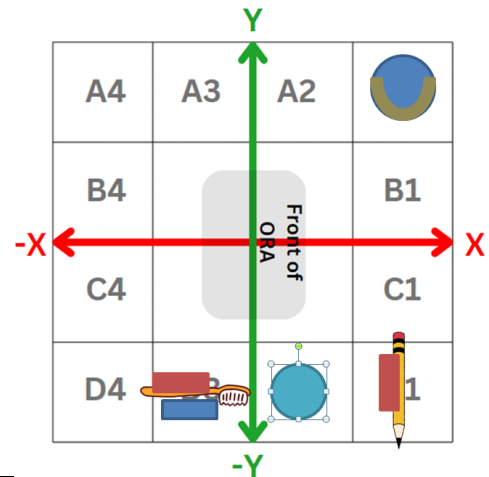
Date: _____

Elaborate

In this challenge, students will program ORA to perform routine dental cleaning on a set of cardboard 'teeth.' This cleaning will involve removing built-up deposits on the teeth and then applying a fluoride treatment with a toothbrush.

Task Requirements:

1. ORA must start in the initial position.
2. ORA must use the finger grippers to pick up the pencil and use the pencil to remove plaque buildup from the teeth.
3. After the teeth are cleaned, the pick will be replaced in D1.
4. The toothbrush will be picked up, dipped in the fluoride cup, and then used to brush the teeth.
5. After teeth are treated with fluoride, place the brush back in D3.
6. ORA must finish in the Initial Position.



Pseudocode	Code Blocks
Answers will vary	Example solution code or use Share Code ne44d4r

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Evaluate

Please answer the following prompts.

Remember to include your **name** and **date** on this paper!

1. After learning about robotic dentistry, would you choose to go to a dentist who uses robotic arms? Why or why not?

Answers will vary but students should at least justify why they would use or would choose not to use a dentist that uses robotic arms.

2. After testing your code in the Elaborate section, was it more difficult to pick the plaque or apply the fluoride? What about that process made it more difficult?

Answers will vary. The fluoride treatment does require precise movement around a curved surface. But, at the same time, the Play-Doh creates a unique problem that likely cannot be removed with a single pass of the pencil.

3. Does the job of Robotic Engineer interest you? After learning about dental robotics in this lesson, would this be a path you may consider? Why or why not?

Answers will vary but students should justify whatever answer they give.