Slide A

Navigate

With your class

We saw that EM radiation is used in different forms of communication.

- What types of information can we communicate with our current devices?

Navigate

With your partner

Use the EM radiation cards to consider the following questions:

- Which types of EM radiation are used to create images?
- Which types of EM radiation are used to send images?
- Which of these EM radiation types are we more familiar with?

Identify Relevant Interactions with Matter

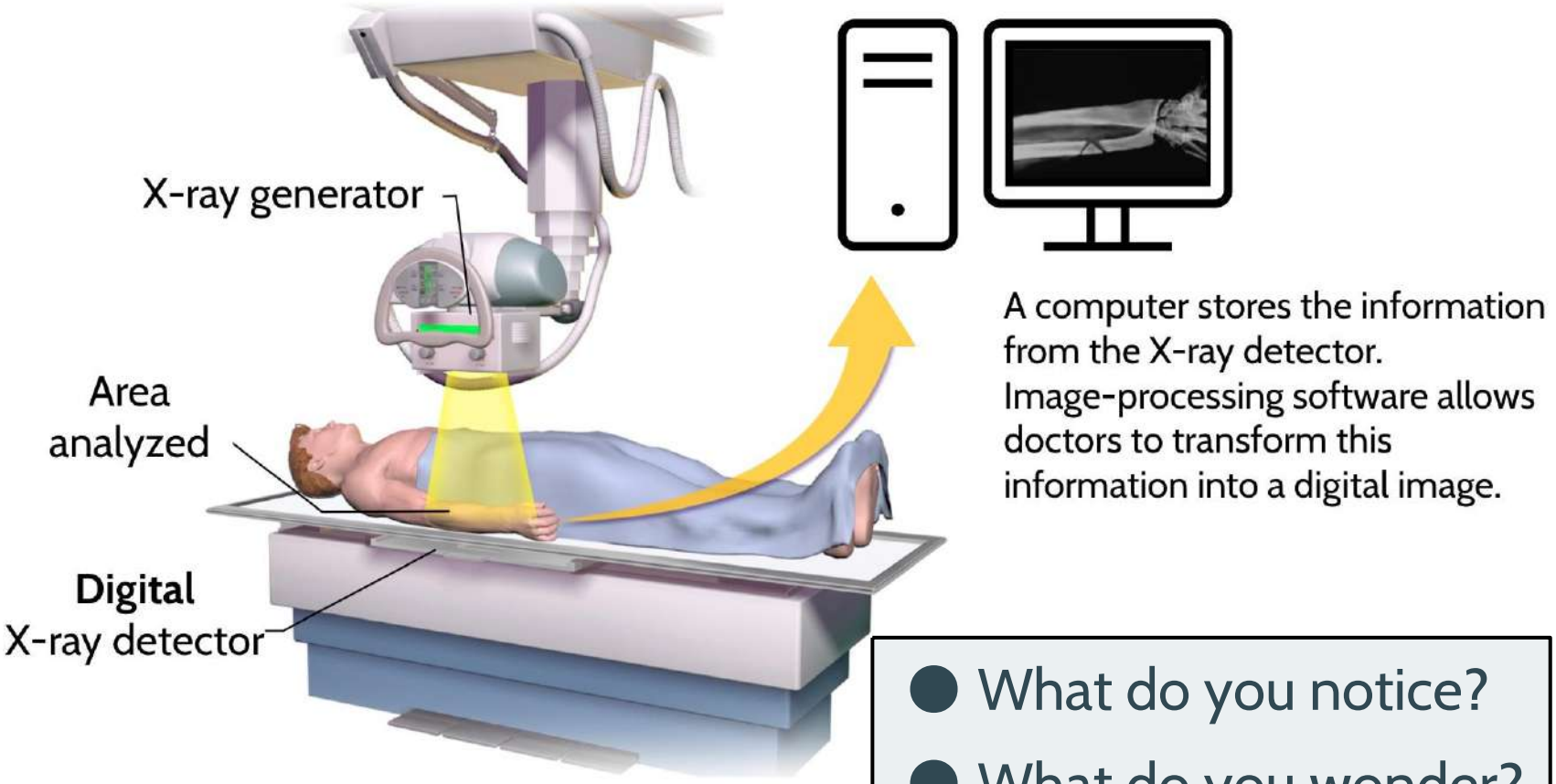
Turn and Talk

What interactions with matter do we think can help us use X-rays to create images of a fractured bone?

X-rays can transmit through some less dense materials, such as air or water; however, denser materials, such as bone or metal, tend to absorb X-rays. X-rays have the ability to knock electrons out of atoms in a process called *ionization*. This interaction can be harmful to living cells and is used in radiation therapy for cancer treatment.

Slide D

Identifying Areas of Uncertainty



Slide E

Exploring Ionizing Radiation Safely

With your class

X-rays are a form of ionizing radiation.

- How could we safely learn more about X-rays?

Obtain Information

On your own

We will use a summary of a scientific article to gather information to help us explain:

- What happens at the X-ray detector?
- How is the computer (digital) image created and stored?

Slide G

Debrief Main Ideas from the Reading

With your class

- How does the exposure time of digital radiography and conventional radiography compare?
- What explains the difference in exposure time between these technologies?
- What are the benefits of decreasing exposure time?

Debrief Main Ideas from the Reading

Turn and Talk

- Which model of light, the photon model or the wave model, is more helpful to explain why digital radiography requires less exposure than conventional radiography?
- How can we use this model to identify strategies that reduce harm from exposure to high-frequency EM radiation?

→ Be ready to share your ideas with the class.

Debrief Main Ideas from the Reading

Turn and Talk

Digital radiography stores images digitally in computers, whereas conventional radiography uses film.

- What are the advantages and disadvantages of creating X-ray images digitally rather than using conventional film?

→ Be ready to share your ideas with the class.

Update Progress Tracker and Glossary

On your own

- Make a record of your ideas right now in your Progress Tracker to explain how we can use EM radiation to create and store digital images.
- Record a definition of *digital information* in your Personal Glossary.

Navigate

With your class

- What uses of EM radiation can we explain?
- What are some uses of EM radiation that we cannot fully explain yet?

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