

Learning Guide 1: Science at Home

Complete the following questions as you work through the related lessons. You will need to complete all questions with a correct response in order to receive full marks. Do your best and ask questions if you don't understand anything!

Technology in the Home

1. What is the technology that you decided to focus on for your Technology Today project?
2. How does this technology benefit you and others in the world?
3. Can you think of one example of how this technology may not be beneficial? (For example, is it dangerous to use? Are there health risks? Does it have a large carbon footprint?)
4. What is one other technology that you learned about during the group presentations?
5. How does this technology benefit you and others in the world?
6. Can you think of one example of how this technology may not be beneficial? (For example, is it dangerous to use? Are there health risks? Does it have a large carbon footprint?)

7. The contrast between Microsoft's, 'House of the Future' and New Story/ICON, '3D-Printed Home' is evident in the two video clips presented. Comment on the advantages of both models to provide home security.

House of the Future: https://www.youtube.com/watch?v=Wh-LV28Quqs&feature=emb_logo

3D-Printed Home: https://www.youtube.com/watch?v=wCzS2FZoB-I&feature=emb_logo





8. If you had the financial resources to support 1 of the 2 models, which one would it be and why?



Chemicals in the Home




Hazard symbols are on the labels of many products in and around your home and garage, like cooking spray, cleaning products, paint thinners, drain cleaners and windshield washer fluid. **H**azardous **H**ousehold **P**roduct **S**ymbols (**HHPS**) were developed for people buying and using household materials.

Hazard symbols have three parts:







- 1) Symbol (picture)
- 2) Frame
- 3) Signal words underneath the image

Symbol	Name	Description & Precautions
		<ul style="list-style-type: none"> - Container can explode if heated or punctured - Flying pieces of metal or plastic from the container can cause serious injury, especially to your eyes
		<ul style="list-style-type: none"> - If ingested or inhaled, you could become very sick or die
		<ul style="list-style-type: none"> - Product can burn your skin or eyes - If ingested, it can damage your throat and stomach
		<ul style="list-style-type: none"> - Product or its fumes will catch fire easily if it is near heat, flames or sparks - Rags used with this product may begin to burn on their own

Frame	Name	Description & Precautions
		<i>Contents</i> are dangerous
		<i>Container</i> is dangerous

Signal	Name	Description & Precautions
		<ul style="list-style-type: none"> - Temporary injury may result - Death may occur with extreme exposure
		<ul style="list-style-type: none"> - May cause temporary or permanent injury or death
		<ul style="list-style-type: none"> - Exposure to very low amounts may cause death or serious injury

1. Fill in the following table with precautions for the hazards.

2. What hazard symbols should be placed on these products? (Include symbol, frame and signal).

Product	Hazard Symbol, Frame & Signal
Hairspray	
Bleach	
Rubbing alcohol	
Windex (glass cleaner)	
CLR (drain cleaner)	
Tide Pods	

3. Why is it important to read the label before you buy a household chemical product?

4. What is one way that you can use household products safely around children?

5. How should flammable contents NOT be disposed?

6. What are some consequences in pouring harmful chemicals down the drain?

Hazard Check Virtual Tour

Go to <https://tinyurl.com/hhps11> and explore the different areas of the home. Choose one room.

1. Which room did you choose to do your hazard check tour?

2. Identify the 3 hazards and summarize them in your own words here.
 - 1)

 - 2)

 - 3)

3. Which of those hazards do you think is the most relevant to you? Why?

Contagious Diseases

We constantly come in contact with bacteria, viruses or parasites that could make us ill. Begin your learning by playing the game Pandemic 2: <https://www.addictinggames.com/strategy/pandemic-2>

The goal of the game is to infect as many people as possible as bacteria, viruses or parasites. Play in the **relaxed mode** until the game is over (there will be a “game over” screen that comes up).

1. What was your final game score?
2. There are many ways to evolve your disease to help spread it. What was 1 strategy that helped in transmitting your disease? Why do you think this helped?
3. What was 1 strategy that helped increase the diseases' resistance? Why do you think this helped?
4. What was 1 strategy that helped in increasing death rate? Why do you think this helped?
5. You may have noticed that there needs to be a balance between disease lethality, infectivity and visibility. If you were to play this game again, what strategy would you implement to win the game?

Inquiry Question

We use and are aware of chemicals every day at home, but do we understand how they really work?

We interact with chemicals in the home but may not always understand how they work. This is an opportunity to explore those questions through research. You will communicate what you've learned in

text and/or illustration format, making sure to cite credible sources. Choose one question from the list below OR choose one of your own that is about chemicals in the home.

Each question has three criteria you must meet to fully answer the question. The criteria are:

1. **Explain what you learned** about your question using appropriate scientific language. No need to go crazy with using technical terms everywhere but use the appropriate terms to accurately describe what you are communicating.
2. **Use a drawing or illustration** to help explain your learnings. There are no restrictions here, as long as the drawing helps communicate the science!
3. **Cite at least 2 credible sources** you used to research your question. If it's a website, simply copy the URL. If it's any other kind of media, give as much info as possible about it (book, video, etc.). If it's a professional who is knowledgeable about the material you're exploring, cite their name, position or educational background, and relationship to you.

Possible inquiry questions:

- 1) How does soap work?
- 2) How does caffeine work and why do plants produce it?
- 3) Why is carbon monoxide so dangerous that many homes have sensors to detect it?
- 4) How is soda pop carbonated?
- 5) Why do carcinogens cause cancer?

My Inquiry Question:

What I Learned:

