

Name:

Date:

Class:

Engineering Design Process Packet

ASK: Asking Questions to Understand

As artists and engineers, we ask important questions about our project to understand the problem.

Asking questions in the format “*who, what, when, where, why, and how*” helps us to develop efficient solutions.

Read the questions below and write a complete sentence to answer each one.

IMPORTANT QUESTIONS

WHO IS IN NEED?

WHAT IS THE PROBLEM?

WHEN DO WE NEED TO FIND A SOLUTION?

WHERE DOES THIS PROBLEM TAKE PLACE?

WHY DO WE NEED TO HELP?

HOW CAN WE SOLVE THE PROBLEM?

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RESEARCH: Looking at Hieroglyphs

Hieroglyphs are a writing system used in Ancient Egypt. The word 'hieroglyphs' breaks down to "Holy Writing"; *hier* means "holy," and *glyphs* means "marks" or "writings." Hieroglyphs are made up of pictures of animals, objects, and symbols. Hieroglyphs were used to represent words, letters, or sounds.

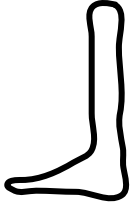

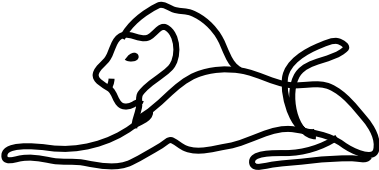
Below are three hieroglyphs. Draw and write what you think the hieroglyph means, and why. The teacher will reveal what the hieroglyph means.

Key Terms

Research: Exploring and studying to learn facts and better understand a topic

Hieroglyph: Ancient Egyptian writing

Symbols: A mark, image, or object that represents something

Hieroglyph	What I think it means	What it means
		
		
		

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IMAGINE 1: Brainstorming

Put on your thinking caps! Think about how you will create your map prints using your own symbols. Think about how you can represent pictures for important places in the school just as Ancient Egyptians would. Would you recognize the symbols you created? Draw two symbols you can use to give directions around the school. Give one reason why. Draw or write what materials you might use.

My Ideas

SYMBOL

I used this symbol because:

I can use:

SYMBOL

I used this symbol because:

I can use:

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IMAGINE 2: Brainstorming

Take time to draw more symbols and write what they mean to complete your map.

My Symbols

SYMBOL

MEANING: _____

SYMBOL

MEANING: _____

SYMBOL

MEANING: _____

SYMBOL

MEANING: _____

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PLAN: What's Your Solution? (Individual)

What is your solution? Draw a basic layout of your map and note any personal ideas you may have.

My Solution

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PLAN: What's Your Solution? (Group)

Discuss the plan as a group and come together to decide on a final solution!

Our Solution

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TEST: Test Your Prototype!

Test your map print. Record observations and notes.

Key Terms

Prototype: An original model from which later stages are created

Observation: The process of watching or studying closely

My Observations

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IMPROVE: How Can We Make Our Prints Better?

As a group, think about the outcome of your map. Were the directions successful? How do you think your group can improve your map prints? Discuss as a group and use complete sentences to answer the questions.

Ways We Can Improve

How can your group improve your directions to make them easier to understand?

How can your group improve your symbols to make them clearer?

How can your group improve your cyanotype map prints to make them more effective?

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