Literacy T-Chart – Frayer Model

CIP 46.0201 Carpentry

Determine the meaning of symbols and vocabulary as they are used in a specific context.

Program Task:	PA Core Standard: CC.3.5.6.11-12.I
402: Read, interpret and comprehend standard symbols and abbreviations.	Description: Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Program Associated Vocabulary:	Reading Associated Vocabulary:
Blueprints Orientation Scale Plumbing Symbols Landscaping Symbols Mechanical Symbols Electrical Symbols Architectural Symbols Civil Symbols Structural Symbols	Essential characteristics Non-essential characteristics Examples Non-examples

Program Strategy:	Literacy Strategy:
Use the Frayer Model strategy to ensure that students develop a deep understanding of key concepts. After introducing the Frayer Model strategy and before starting the project, present the following prompt to the students: *Your construction team is asked to choose a design for a portable tool storage building that meets the needs of your class for storing and transporting tools to and from school competitions and future job sites. You will look at various designs and interpret what all symbols mean.* *Your team will present your recommendations to school officials, using the drawings to explain your choice.*	Frayer Model is used only for key vocabulary concepts. Students begin the graphic organizer before reading, but will re-visit it as they learn additional information. This is especially useful as students read multiple texts on the same concept and collect varying information.

Program Strategy:	Literacy Strategy:
Blueprints consist of lines, marks, symbols, letters and figures. Accurate use of drawings and blueprints is crucial to your assignment.	

Essential Characteristics	Non-essential Characteristics
	Concept
Examples	Non-examples

Program Strategy:

Blueprints consist of lines, marks, symbols, letters and figures. Accurate use of drawings and blueprints is crucial to your assignment.

Read the assigned informational articles and research additional information as needed. Specifically note these key vocabulary words: blueprints, orientation, scale, plumbing symbols, landscaping symbols, mechanical symbols, electrical symbols, architectural symbols, civil symbols, structural symbols.
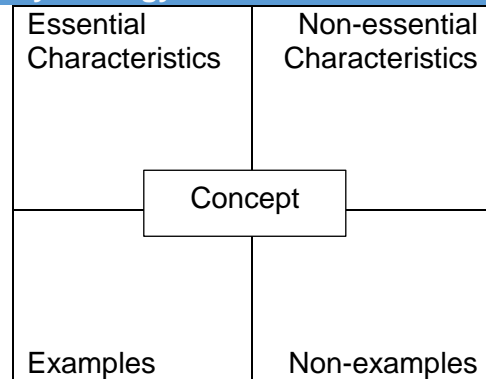
For each key term, complete a Frayer Model graphic organizer. Each Frayer Model consists of the following components:
- *Essential Characteristics*
- *Non-essential Characteristics*
- *Examples (with sketch)*
- *Non-examples*

Encourage teams to divide the words evenly among members to individually develop the graphic organizer and then as a group discuss and display their Frayer Models.

Each group will use their understanding of the vocabulary in the Frayer Models to develop their presentation to the school officials.

Literacy Strategy:

Whole Group
Show the model for the whole class and briefly discuss what goes into each section. Add a simple concept that all students should have some experience with (e.g., toy, dinner) and ask them to jot down notes for what they think each quadrant would contain.

After a minute or two for thinking, facilitate student responses for items to go into each quadrant. Guide their thinking by asking questions of some entries: Is dinner served at a time other than night in some sections of the country? Does a toy have to be reusable? This phase of the lesson should take no more than 10 minutes.

Guided Practice
Distribute a short reading (one or two paragraphs) about a topic that was covered earlier in the year or is generally known, (e.g., democracy, photosynthesis). Direct students to read the passage individually and complete a Frayer Model. Ask students to collaborate with a shoulder partner to determine what should be in the Frayer Model. Then ask pairs to contribute to the whole class model. Challenge students with questions to make sure that they are adding only what has come from the reading.

Application
Identify key concepts for the current unit or project. After reading provided or student-identified texts, have students complete Frayer Model templates for each key concept.

Students should keep their on-going Frayer Models in their class notebooks or folders. Periodically, check student work to determine if they are adding to their understanding of the concept by reading or class experiences.

Program Strategy:	Literacy Strategy:
	In debriefing, use the following questions: • How did you (your group) complete the categories? Think about your thinking – Why did you categorize them the way you did? • Why is it important to know which characteristics are essential and which are not? • Why is it important to identify non-examples that could be confused with examples? Listen for: • Justification for categories. • Understanding why knowing the difference in the terms is important. • Understanding that some students had background about the concept that may be accurate or not. • Relying only on the texts for information. • This activity is teaching reasoning skills of classification and deduction.

Instructor's Script – Frayer Model

Being able to correctly characterize key concepts is an important skill. Thinking deeply about what defines processes, equipment or products is essential to many development processes.

The Frayer Model provides a visual map for students to distinguish among the various kinds of blueprint specifications. Discussing examples and non-examples of the symbols is especially useful for students with different learning styles.

Common Mistakes Made by Students

Students fail to make distinctions between symbols that are similar. In this strategy, students often consult (and copy) a dictionary or glossary definition for the meaning of words and then do not consider the possible complexities of key terms.

In the Frayer Model, students often look for only the most obvious answers. For instance, they may say that a non-example for a table is a car or a person. Students need to think more deeply and identify examples that could be considered in the same class of objects or concepts. A non-example of a table might be a desk—something that is similar but typically has different purposes. If essential characteristics of a chair are that it has a back, seat and legs, then a milk stool would be a non-example because it does not have a back although it has a seat and legs.

Although symbols are straightforward, as students continue reading different texts and applying the information to new content, they may need deeper conversations to determine if their initial entries are need adjusting.

CTE Instructor's Extended Discussion

It is important that carpentry students thoroughly understand drawings and blueprints and are able to interpret all lines, marks, symbols and letters found on them. Considerable time is required to produce blueprints and they are, therefore, expensive. Component parts of all buildings require extensive lists for construction.

Sample Questions

Career and Technical Concepts

Question	Answer
Architectural scales are used in blueprints for the construction of building exterior and interiors; for establishing doors, windows, and walls; and use fractions. Which of the following ratios is likely an architectural scale? A. 1/8" = 1' B. 1" = 50" C. 1/8" = 50' D. 1" = 1'	A. 1/8" = 1'

PA Core Reading Concepts

Question	Answer
Read the paragraph below and then answer the question that follows: Architecture is both the process and the product of planning, designing, and constructing buildings and other physical structures. Architectural works, in the material form of buildings, are often perceived as cultural symbols and as works of art. Historical civilizations are often identified with their surviving architectural achievements. Which of the following is a non-essential characteristic of architecture? A. Process of planning, designing and constructing buildings B. Views buildings as cultural symbols C. Includes constructing buildings and physical structures D. Blueprints of important buildings	B. Views buildings as cultural symbols