

"ABSTRACTION" -

Less ABSTRACT ← → MORE ABSTRACT



5

ACTUAL PERSON



drawing

Real Actual Space ships

STAR FOX

SPACE INVADERS

ABSTRACTION MEANS...

Take away detail.

Departing realism for representation.

Grab a closed laptop and
open notebook.

Purpose: How to convert
5 into 0101.

$$3 = 000\checkmark\checkmark$$

$$8 = 01000$$

$$10 = 01010$$

$$6 = 00110$$

$$0 = 00000$$

Listed below are the types of words and phrases you will need for answering test questions about this lesson.

2.1 - A variety of abstractions built upon binary sequences can be used to represent all digital data. **2.1.1** - Describe the variety of abstractions used to represent data. [P3]

- **2.1.1A** - Digital data is represented by abstractions at different levels.
- **2.1.1B** - At the lowest level, all digital data are represented by bits.
- **2.1.1C** - At a higher level, bits are grouped to represent abstractions, including but not limited to numbers, characters, and color.
- **2.1.1D** - Number bases, including binary, decimal, and hexadecimal, are used to represent and investigate digital data.
- **2.1.1E** - At one of the lowest levels of abstraction, digital data is represented in binary (base 2) using only combinations of the digits zero and one.

2.3 - Models and simulations use abstraction to generate new understanding and knowledge. **2.3.1** - Use models and simulations to represent phenomena. [P3]

- **2.3.1A** - Models and simulations are simplified representations of more complex objects or phenomena.
- **2.3.1B** - Models may use different abstractions or levels of abstraction depending on the objects or phenomena being posed.

2.3.2 - Use models and simulations to formulate, refine, and test hypotheses. [P3]

- **2.3.2A** - Models and simulations facilitate the formulation and refinement of hypotheses related to the objects or phenomena under consideration.
- **2.3.2B** - Hypotheses are formulated to explain the objects or phenomena being modeled.
- **2.3.2C** - Hypotheses are refined by examining the insights that models and simulations provide into the objects or phenomena.