Computer Integrated Manufacturing Name [ ]

Elevator Research

Directions: We are going to research how elevators work. Complete this worksheet before, while and after you read the article “How Elevators Work” (online, 8 pages).

**Before Reading:**

Answer the questions on the back of this packet

**While Reading:**

1) What is hydraulics?

2) How does a hydraulic elevator lower the car?

(Answer should include a description of the valve)

3) What are two disadvantages of hydraulic elevators?

A)

B)

4) In a cable system, the machine room contains these components. What are they and what do they do?

1) The Sheave:

2) The Electric Motor:

3) The Control System:

5) What is a counter weight and why is it used in cable-based elevator systems?

6) Define the Word Redundant:

7) Cable-based elevators have redundant safety systems. Explain how the these safety systems work.

A) The Cables:

B) Safety Brakes:

a) Governor System:

b) Brake System:

8) If a cable-based elevator does fail and fall to the ground what is the last safety mechanism to protect the passengers?

9) When programming an elevator the computer needs to know what 3 things?

A)

B)

C)

10) What are some ways that the computer can know where the elevator is?

11) In older control systems, elevators were “dumb”. Why are newer control systems considered “smart”?

12) Describe a load sensor:

**Before Reading:**

1) Are you ever scared that the elevator you are riding on will break and crash to the ground?

2) Describe and draw a picture that shows how you think an elevator works.

Describe:

Draw:

**After Reading:**

1) Compare your thoughts before reading the article to now. What did you learn about how elevators work?

Different types of elevators:

Safety Systems:

Control Systems (programming):