Mastering Game Masters: The Exhibition
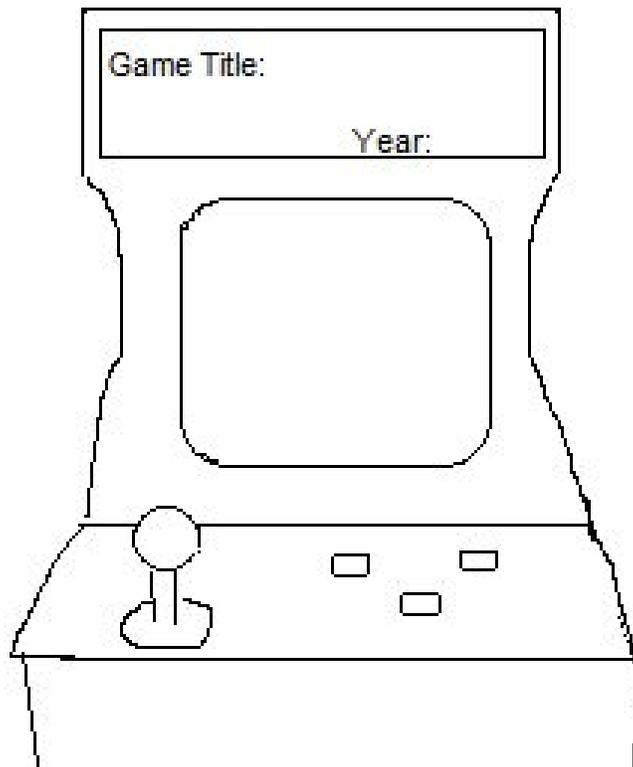
Group Leader/Chaperone Guide

RANK	SCORE	NAME
1st	10000	_____

FLEET SCIENCE CENTER

GAME MASTERS THE EXHIBITION

What is your favorite Arcade Heroes game?

Old arcade video games have lower resolution graphics and simpler sounds, but they are still fun to play.

▶ Find a classic arcade game you like and draw a picture of the character in the game. Why do you like the game? (2000 pts.)

Game Title:

Year:

All video games are controlled by a computer program.

You can learn to code by creating classic arcade style games.
Try some starter projects on the Scratch website:
https://scratch.mit.edu/starter_projects/

◖·· **Suggested Topics for Classroom Discussion:**

Why are low-tech arcade games from '70s and '80s still fun to play?
What can today's game designers learn from old arcade games?

◖·· **Suggested Reading:**

"Blasts From the Past"- *Slate*
http://www.slate.com/articles/arts/gizmos/2003/12/blasts_from_the_past.html

How is math used in video game design?

1) Physics Simulation:

Game designers simulate laws of physics to make the game look and feel more real to the player. The trajectory of an Angry Bird flying through the sky and the distance and direction Mario jumps is determined mathematically.

▶ Find two games that use physics in their movements.

Game Title (Year)	Simulation Action I like
#1	(1000 pts.)
#2	(1000 pts.)

◖⋯ **Suggested Topics for Classroom Discussion:**

Many game designers modify real life physics to make the game more fun to play. Can you name a game that does not obey the laws of physics?

2) Computer Graphics

Graphics are an important part of video games. Recent video games have graphics that look almost real which would not be possible without the use of advanced math.

▶ List two games that have realistic visuals.

Game Title (Year)	What do you like about the graphics?
#1	(1000 pts.)
#2	(1000 pts.)

◖⋯ **Suggested Topics for Classroom Discussion:**

What are the psychological impacts of video game graphics? How does it affect gamer demographics?

Motion controlled gaming

You can use your body motion to control some games.

▶ List two games that use motion to control the activity.

Game Title	How does the game sense your motion?
#1	(1000 pts.)
#2	(1000 pts.)

Games use motion sensing devices and sophisticated computer software to track your motion.

◖·· **Suggested Topics for Classroom Discussion:**

Some game controllers use accelerometers. An accelerometer is a device that detect acceleration (how fast speed or direction changes) to sense motion. Other devices like Kinect use cameras and infrared sensors to track player's body movement. The movement data from these sensors are further processed using sophisticated motion tracking algorithms.

Humans use senses to detect motion. How do we collect movement data from the environment?

◖·· **Suggested Reading:**

"Movement perception" - Encyclopedia Britannica
https://www.britannica.com/topic/movement-perception

What kind of game would you like to make or play in the future?

Computer technology and video games are directly connected.
Newer technology changes the way we make and play games, and technological advances have been driven by video game designers.

▶ What kind of game would you like to make or play in the future?

(2000 pts.)

⬤··· Suggested Topics for Classroom Discussion:

Virtual reality and augmented reality are two new technologies gaining popularity among game developers.

Virtual reality games let players experience being in a three dimensional environment and let them interact with the environment.

Augmented reality games like Pokemon Go use technology to superimpose information on the world we see.

There were some incidents of Pokemon Go players causing accidents. How would you design games that are safe to play using these new technologies?

⬤··· Suggested Reading:

How Gaming Is Shaping the Future of Work - *Harvard Business Review*

https://hbr.org/2016/05/how-gaming-is-shaping-the-future-of-work