The games in the Midway can be difficult to win. Even the most experienced gamers may have trouble scoring a coveted prize. However, there are some players who just seem naturally inclined to win, despite not having an opportunity to practice. Discover what traits these innately awesome players share, and use Mendelian concepts to "breed" the perfect player.

During this Gamer Quest, you will:
★ Observe the physical traits of a gamer
★ Use Mendelian genetics to determine which traits make a better gamer
★ Create a caricature of a person utilizing the traits that make a better gamer

Learning Standards
★ Science (Biology) TEKS: 2B, 2C, 6D, 6F, 7D
★ Art TEKS: 1A, 2C; Art II: 3A, 4B
★ ELAR TEKS: E1(1)(A), E1(15)(D), E1(23)(C)

Before You Go
★ Introduce and discuss Mendel and concepts of Mendelian genetics.
★ Use Punnett squares and the typical sweet pea or eye color gene expression to explain dominant/recessive traits, gene expression, and gene coding.
★ Discuss monohybrid crosses and dihybrid crosses.
★ Assign hypothetical gene coding for height, vision, and arm length.

Invitation
★ Invite students to bring the listed materials and follow the route, and perform the tasks below at the State Fair of Texas:

STATE FAIR MAP

Plan Your Route
★ Go to the center of the Fair and find the Midway.

Optional Materials to Bring
★ Writing utensil and something to write on
OR
★ A way to digitally take notes
★ Camera

While You're There
The objective of your visit is to determine which apparent traits of a person appear to make them successful or unsuccessful at the games.

★ **CODING THE PERFECT PLAYER:**
  o Observe players on a game of your choice.
  o Collect data: Note specific physical characteristics of the player and their success.
    ☐ **Height:** tall, short, average
    ☐ **Arm length:** long, short, average
    ☐ **Vision:** glasses or no glasses
    ☐ **Musculature** and approximate **age**
  o WITH PERMISSION take a photo of the player to compare your classifications of that player with those of your teammates back at school.
  o Bonus: interview the players you observed to collect height, age, and vision data.
  o Bonus: play the game yourself and note your data.
★ **CARICATURES (ART PORTION):** In the art portion of this lesson, you'll be drawing a caricature of the perfect player.
  o A caricature is an exaggerated drawing. In your drawing, you'll have to really show the physical traits that make someone good at winning, so make sure you take good notes at the Fair!

After the Fair

When you return to class following your State Fair visit, you will partner with another student in class to sort through your data:

★ Decide which physical traits from your parameters make a successful player based on your data collection.
★ Using the hypothetical gene codes assigned by your teacher, create Punnett squares and determine whether being a good player is dominant or recessive.
★ Use your Punnett squares to try to "breed" the perfect player.
★ Answer the following questions:
   o How many generations will it take before you get 75% "perfect" players?
   o How might the appearance of glasses skew your data or make it unreliable?
   o What physical traits would be considered non-inherited?
   o Describe the importance of gathering further data such as being able to interview players.
   o Describe any difficulty you ran into with your breeding program.

ART PORTION

★ Using the information that you gathered regarding the physical traits that you observed, make a list of the traits that you determined will create the "perfect player."
★ Now, make a caricature of that player, emphasizing the traits that you listed. Below is a video on the art of caricature. Practice with a few before jumping into your main work!
   o http://www.learn-to-draw.com/caricature/06-line-draw-caricatures.shtml
★ If possible, this would be a great project for the entire class. When finished, have everyone hang his or her caricature for exhibit. Did everyone exaggerate the same features? What are some of the main differences in everyone's caricatures? Are there more female or male examples? Why do you think that is?

$$m_b = h_b = l_b = \sqrt{a^2 - b^2/4}$$

$$(\Sigma x^2) - (\Sigma x)(\Sigma xy)$$

$$A = F \cdot S \cdot \cos d$$

Source: https://unbreakabletwo.files.wordpress.com/2010/07/lebron_james.jpg

En ENGLISH COMPONENT

What would the Midway look like if all of the players choosing the games were "perfect players"? Dystopian literature is extremely popular right now with young adult authors, and dystopian literature is any literature in which everything is bad instead of good (utopian). Dystopian literature is usually set in the future, and in this case, I want you to imagine that it is 200 years in the future and we are all "perfect players". What are the drawbacks to everyone being a "perfect player"? Would everyone really win? Working with a partner, write the first chapter to your own dystopian story in which the Midway is invaded by "perfect players."