Assessment Questions
Grades 6-8

Module 1.0: The Game Evolved

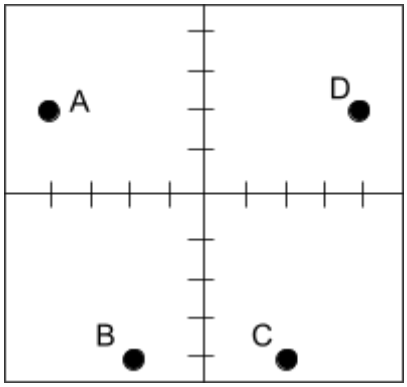
1) What property of a tennis ball has the **most** impact on its function?
   a) Weight
   b) Size
   c) Material
   d) Color

2) What property of a tennis ball does **not** have an impact on its function?
   e) Weight
   f) Size
   g) Material
   h) Color

3) What material is the best to use for the frame of a racket?
   a) Wood
   b) Graphite
   c) Rubber
   d) Cork

Module 2.0: Dimensions of the Court

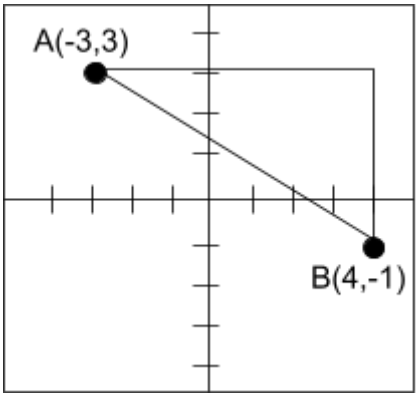
1) Which of these points is located in coordinate (2,-4)?
   a) Point A
   b) Point B
   c) Point C
   d) Point D



2) On a coordinate plane, if a player hits the ball from (-12,-4) to (-12, 6), how far would the ball travel?
   a) 8 units
   b) 10 units
   c) 12 units
   d) 16 units

3) If a player hits a ball from point A to point B, how far did the ball travel? Use Pythagorean Theorem to calculate the hypotenuse.

a) About 4 units
b) About 7 units
c) About 8 units
d) About 11 units



Module 3.0: The Playing Surface

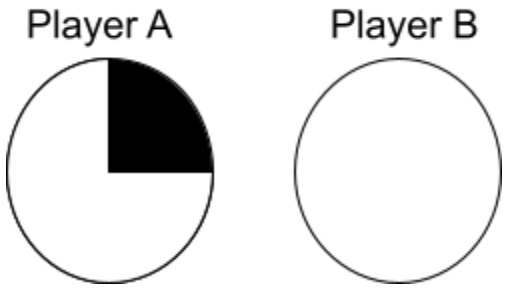
1) What are the three primary surfaces tennis is played on?
    a) Sand, Grass, Concrete
    b) Clay, Concrete, Grass
    c) Grass, Sand, Clay
    d) Clay, Concrete, Grass

2) Based on the speed of the ball on the court, order the playing surfaces from (1) slowest to (3) fastest .
    ____ Grass Court ____ Concrete Court ___ Clay Court

3) Based on the height of the bounce of the ball on the court, order the playing surfaces from (1) lowest bounce to (3) higher bounce
    ____ Grass Court ____ Concrete Court ___ Clay Court

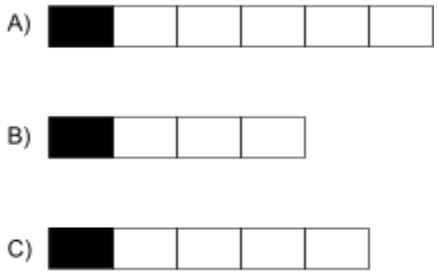
Module 4.0: I'd Love to Keep Score

1) If the shaded part of the model represents the points scored, what is the score of the tennis match?
    a) Player A - 45 Player B - Love
    b) Player A - 15 Player B - Winning Point
    c) Player A - 40 Player B - Winning Point
    d) Player A - 15 Player B - Love



2) If Player A wins the first game (shaded portion), which fraction model represents the number of games needed to win the set?

a) Model A
b) Model B
c) Model C



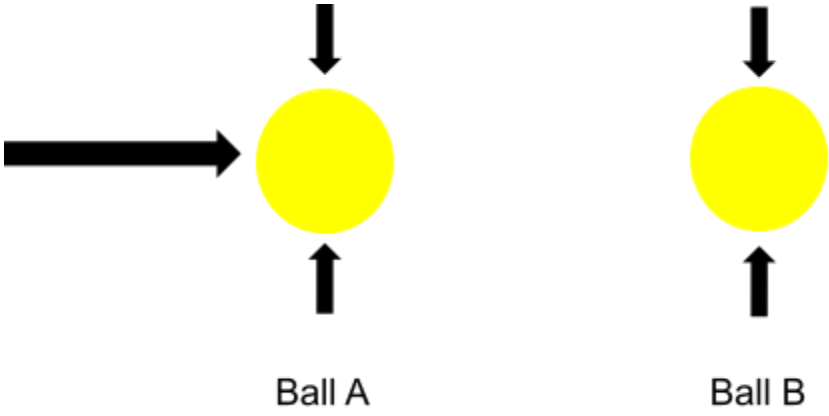
3) Which expression, where p = points, could be used to represent the number of points needed to win a set?

a) $(4p)^6$
b) 6(4p)
c) $(4p)^{12}$
d) 12(4p)

Module 5.0: May the Force be With You

1) The force of an object is equal to the product of the mass and the acceleration of that object is Newton's _____ law.
    a) First
    b) Second
    c) Third

2) Using the diagram to the right, which ball represents balanced forces? Which one represents an unbalanced force?
    a) Ball A is balanced, Ball B is unbalanced
    b) Ball B is balanced, Ball A is unbalanced
    c) Ball A and Ball B are balanced
    d) Ball A and Ball B are unbalanced



3) It takes a tennis ball 4.2 seconds to go from one baseline to the other. If it is hit with a velocity of 33.6 m/s, what is the acceleration of the ball?
    a) 0.125 m/s^2
    b) 141.12 m/s^2
    c) 37.8 m/s^2
    d) 8 m/s^2

Module 6.0: Stroke of Energy

1) To use the formula $KE = \frac{1}{2}mv^2$, the following units must be used:

   Kinetic Energy is measured in _____.
   Mass is measured in _____.
   Velocity is measured in_____.

   Word Bank: grams, kilograms, meters, meters per second, meters per second^2, Newtons

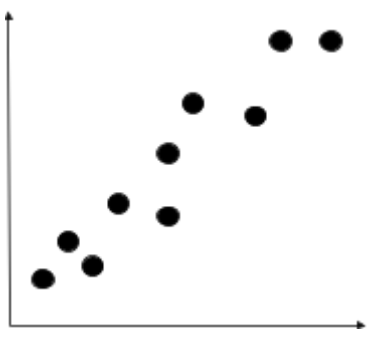
2) A tennis ball is hit at a velocity of 30 m/s. What is the kinetic energy of that ball? (mass of a tennis ball is 0.057 kg)
   a) 1.71 Newtons
   b) 0.10 Newtons
   c) 51.3 Newtons
   d) 512 Newtons

3) The Kinetic Energy (KE) of a tennis ball can be found using the equation $KE = \frac{1}{2}mv^2$: m is the mass of the ball and v is the velocity. If the velocity of the ball is doubled, what happens to the kinetic energy?
   a) The kinetic energy is half of the original kinetic energy.
   b) The kinetic energy is the same as the original kinetic energy.
   c) The kinetic energy is double the amount of the original kinetic energy.
   d) The kinetic energy is quadruple the amount of the original kinetic energy.

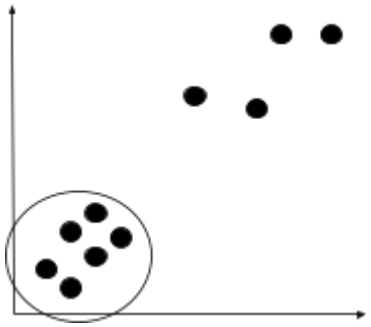
Module 7.0: Let's Serve

1) If a student serves 6 out of their 10 serves in, how is this written as a ratio, decimal, and percentage?
   a) 6/10, 0.06., 60%
   b) 10/6, 0.06, 6%
   c) 6/10, 0.60, 60%
   d) 6/10, 0.60, 6%

2) What type of relationship is provided in the graph to the right?
   a) Positive nonlinear relationship
   b) Negative nonlinear relationship
   c) Positive linear relationship
   d) Negative linear relationship



3) What type of feature is circled on the graph to the right?
    a) An outlier
    b) A cluster
    c) A linear relationship
    d) A positive correlation



Module 8.0: Advancement in Technology

1) Which steps are correct for the EDP (Engineering Design Process)?
    a. Brainstorming → Build → Present → Identify the problem → Redesign
    b. Identify the problem → Brainstorming → Build → Present → Redesign
    c. Present → Identify the problem → Brainstorming → Build → Redesign
    d. Identify the problem → Build → Redesign → Present

2) True or False
    Using technology in tennis will always benefit all stakeholders.