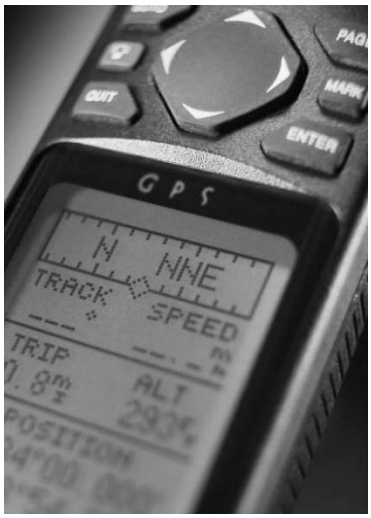
COMBINING TECHNOLOGY & PHYSICAL EDUCATION TO ADDRESS THE COMMON CORE



AAHPERD 2014 NATIONAL CONVENTION
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CREATING QR CODES

There are SOOO many things that can be done using QR Codes. This includes instant activities, scavenger hunts, introducing concepts and demonstration videos of exercises or skills. Their potential in the classroom is endless. You can create QR codes that link to text or URLs. A plus of a text file is there is no need for the mobile device to connect to the internet to decode.

To create QR Codes for your classroom:

If you posting the QR Codes, it is often easiest to create a separate page for each QR code and sometimes even multiple copies of the page to post around the gym. Each question, URL, etc will need its own unique QR code. There are many free sites to use to create QR Codes.

For some URLs, you will need to shorten the URL of each page using an online URL shortener. Then, use the shortened URL to create appropriate QR Codes using a QR code generator. Again, there are many free sites for doing this. (One suggested site that generates and shortens…. http://www.the-qrcode-generator.com/)

Be sure to test each QR code to be sure it works.

FACT OR FICTION SNOWBALL FIGHT

Prior to class, create several "FACT OR FICTION" snowballs. To do this type several FACT OR FICTION statements on 8 ½ X 11 inch paper. Leave plenty of room between statements. Cut the statements a part and then roll them up like a snowball. (The FACT OR FICTION statements should relate to concepts you have been studying in class and challenge students to think about the content related information. It should force them to think about the many myths out there regarding health/fitness and what makes these statements "FACT OR FICTION", thus leading them to becoming more informed consumers.

GPS LOGIC CHALLENGE

For this activity go to, http://sciencespot.net/Pages/classgpslsn.html

CREATING ART WITH GPS

Name _____

Step 1: Sketch It!
Sketch out your "art" below. Then, write the directions for how to follow the sketch. (Examples of possible art: letters, numbers, shapes, animal shapes, pathways, etc.)

Step 2: Share It!
Exchange papers with a partner. Have your partner attempt to follow the directions and walk the shape of your "art". Ask your partners these questions and record their answers below.

1. Were the directions easy to follow? Explain.
2. How could the directions be better?

Step 3: Map It!
Map out your "art" using the GPS unit to track/mark waypoints along the way. Be sure to mark the starting and ending points and any difficult twists and turns along the way! Once you have completed "drawing" using the GPS to track, check out your creation on the map feature.
Answer these questions:

1. Did you GPS map picture look like the sketch you created above?
2. If you did this activity again, what might you do a bit differently?
3. What is something else you might like to try to draw?

Source: Adapted from an activity by T. Trimpe (2012) located at http://sciencespot.net/

WHAT CAN YOU LEARN FROM AN ANGRY BIRD?!!
(PROJECTILES IN MOTION)

PURPOSE: TO INVESTIGATE HOW ANGLE OF PROJECTION ("LAUNCH" ANGLE) AND VELOCITY IMPACT THE FLIGHT PATH (TRAJECTORY) OF A PROJECTILE

EQUIPMENT: BALLS, CHICKENS AND ELASTIC BAND/BUNGEE CORD (SOMETHING TO WORK LIKE A SLING)

CONCEPTS:

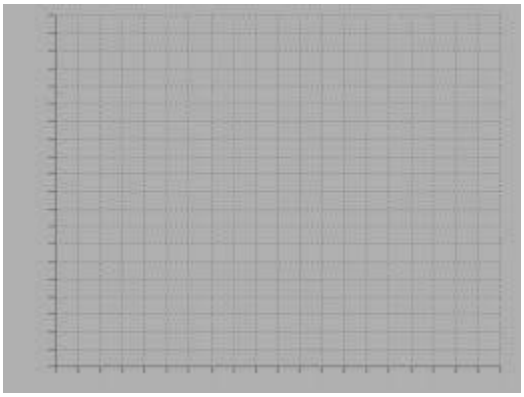
PROJECTILE: ANY OBJECT THROWN OR SHOT INTO THE AIR

TRAJECTORY: THE PATH FOLLOWED BY A PROJECTILE

*MATH EQUATIONS AND GRAPHS CAN BE USED TO DESCRIBE A PROJECTILE'S TRAJECTORY.

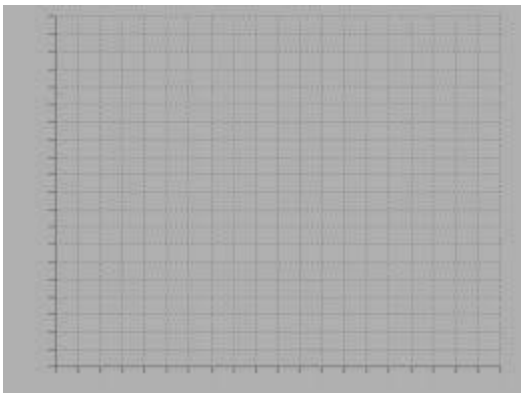
ACTIVITIES:

1. Toss a chicken straight up into the air.
    a. Draw the trajectory (flight path) of the chicken.



    b. Toss the chicken straight up into the air but throw a litter harder. Did you notice any difference in the trajectory of the chicken from the first toss to this toss?
    c. As the chicken goes up, what happens to its speed of travel?
    d. As the chicken comes back down, what happens to its speed of travel?

2. Roll a ball across the floor to a partner.
    a. Draw the path of the ball.



3. In #1, you would call the trajectory of the chicken a _____ line. In #2, the path the rolling ball took would be a _____ line. Trajectories (paths) for projectiles have both a horizontal component and a vertical component.

4. **LET'S LAUNCH!!**

For this activity, you will need some chickens and a sling of some type.

Launching a bird several times, try the following and <u>record the results by graphing the flight distance and estimating the distance traveled</u> in the tables provided.

a. Launch the bird several times by sitting down. Launch using the following angles: 15°, 30°, 45° and 60°. Try each angle two times and change the speed at which you launch between the first and second attempt.

b. Launch the bird several times by standing. Launch using the following angles: 15°, 30°, 45° and 60°. Try each angle two times and change the speed at which you launch between the first and second attempt.

c. Answer the following.

1. At what angle did the bird travel the furthest?

2. What launch angles have the longest time in flight? The shortest?

3. What happens when you launch birds at the same angle but change the initial velocity?

4. What happens when you launch birds at the same velocity but change the initial angle?

5. Were there any differences in the flight patterns when the bird was launched from a sitting versus a standing position? Did the "launch height" (sitting versus standing) have an impact on flight time or distance?

6. What factors impact the horizontal motion of the bird?

7. What factors impact the vertical motion of the bird?

5. **TAKING IT ONE STEP FURTHER—APPLICATION TO SPORT**

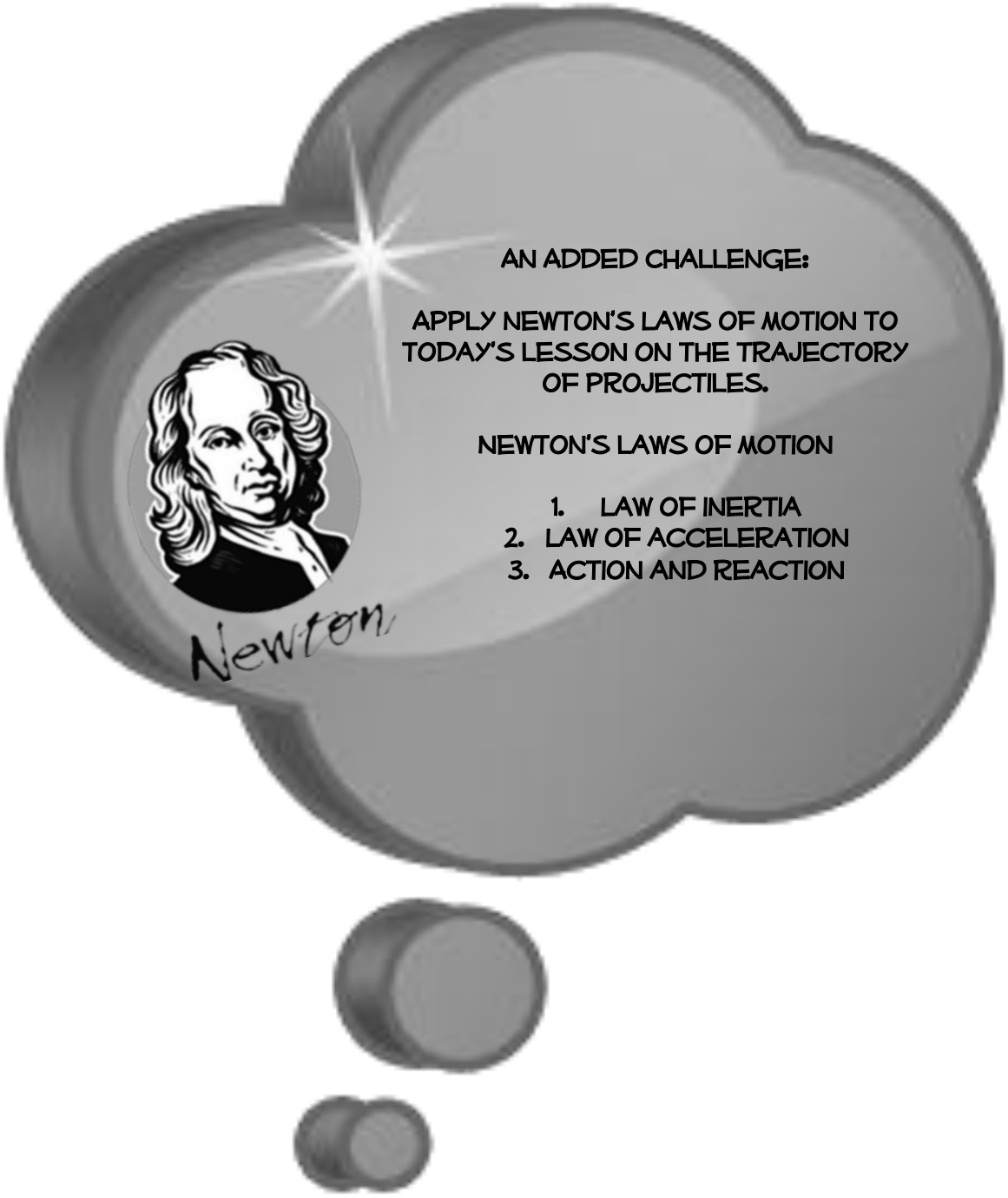
Make a list of sports which involve projectile motion.

What kinds of things do you think would impact the motion of a projectile such as a basketball?

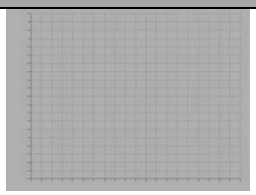
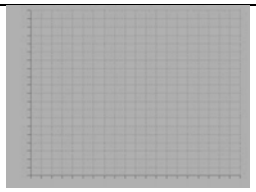
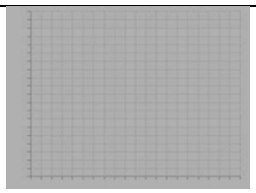
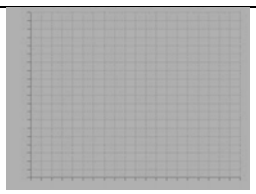
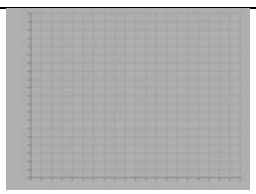
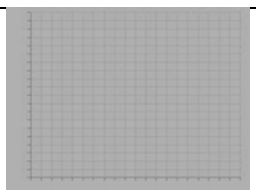
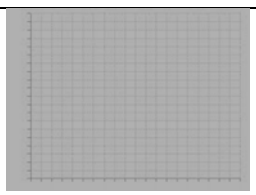
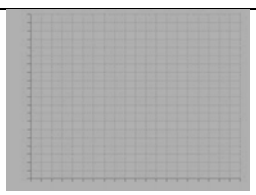
Would your angle of projection ("launch angle") differ when shooting a lay-up in basketball versus shooting a free throw? Explain.

Name some sports in which the human body becomes a projectile.
Potentially (if all else is equal), would a taller shot putter have an advantage over a shorter one? Explain.

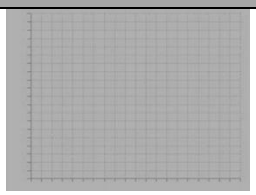
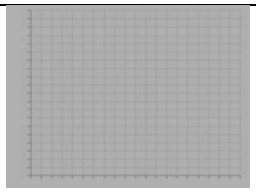
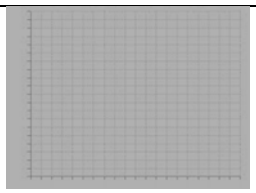
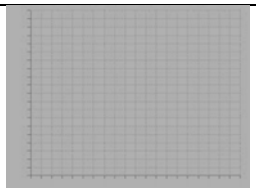
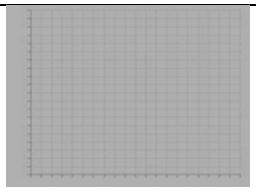
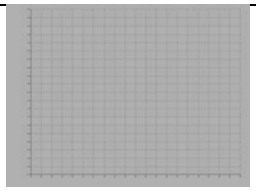
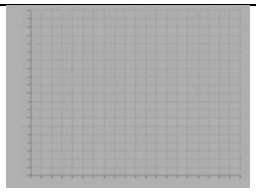
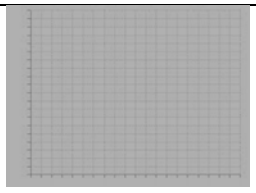
Could understanding projectiles help improve sport performance? Explain.


AN ADDED CHALLENGE:
APPLY NEWTON'S LAWS OF MOTION TO TODAY'S LESSON ON THE TRAJECTORY OF PROJECTILES.
NEWTON'S LAWS OF MOTION
1. LAW OF INERTIA
2. LAW OF ACCELERATION
3. ACTION AND REACTION
Newton

Bird Launch Results: Sitting

Launch Angle	Launch Speed	Trajectory	Estimated Distance
15	SLOW		
15	FAST		
30	SLOW		
30	FAST		
45	SLOW		
45	FAST		
60	SLOW		
60	FAST		

Bird Launch Results: Standing

Launch Angle	Launch Speed	Trajectory	Estimated Distance
15	SLOW		
15	FAST		
30	SLOW		
30	FAST		
45	SLOW		
45	FAST		
60	SLOW		
60	FAST		

PEDOMETER ACTIVITIES

Share and Share Alike – All students wear a pedometer. Class arranged in two parallel lines facing a partner. Teacher chooses a topic. One student shares one answer with partner then both partners turn and run to the line or wall behind them respectively. When facing each other again, second partner shares a response. Continue until topic is changed. **Object is for students to add total steps together with their partner.**

Possible Topics:

Partners:

1. Share one fun way to be active outside at home.
2. Share one fun way to be active outside at home with your family.
3. Share one fun way to be safely active inside your house.
4. Share one fun way to be safely active during commercials while watching television.

Groups of Four:

1. Each person shares a different activity that could strengthen one's arms.
2. Each person shares an activity to strengthen one's core.
3. Each person shares an activity to strengthen one's cardiovascular system.
4. Each person shares an activity four could do together to improve leg strength

Target Zone – Each student wears a pedometer and is given one playing card. All students perform stated locomotor skill around the area while switching cards. Teacher calls "Heart Rate" and students stop and get into groups by suits. After creating group circle listen for next challenge:

1. High number in group chooses activity for group to perform
2. Low number in group chooses activity to group to perform
3. Even numbers Jump and Odd numbers Hop, Face cards stretch legs
4. Find numbers in the group that add to equal ten.
5. Organize numbers in sequence.
6. Look at pedometer number. Even numbers do jumping jacks while odd numbers does curl ups

Students record steps at end of challenges…..can sequence numbers in group. Challenge to increase steps for next class period – estimation.

Mean, Median and Mode – Each student wears a pedometer. Groups of five.

- Median - Students jog to touch 10 different lines and return to group. Each student records number of steps for each person, add numbers together and divides by 5 to determine the mean. Groups check to see if numbers are the same.
- Median – Students each jog one lap. All record individual group numbers and then put in correct numerical sequence. 55, 57, 63, 68, 77 . Determine middle score. If even number in group, add two middle scores and divide by 2.
- Mode – Virtual forward criss cross jumps – Reset pedometer, on command, perform forward criss cross jumps until asked to stop. Record all total numbers and put in sequence to tally. Identify which number is used most frequently.

Student	Steps for touch 10 shoulders	Steps for one lap	Forward Criss Cross	
1				
2				
3				
4				
5				
	Mean	Median	Mode	

Addressing Literacy In Health Education

COMMON CORE

Great Practices in Reading

- Genres
- Health Literacy
- Research
- Scenario Building
- Small Groups
- Individual

Language Arts

- Reading
  - Literature
  - Informational Text
  - Foundational Skills (K-5)
- Writing
- Speaking
- Language

Identifying Existing Efforts

- What do I already do?
- Is the strategy effective?
- Does it support common core efforts?
- How can I adapt?

Health Literacy & Technology

QR Code #1

QR Code #2

Great Practices in Writing

- Reporting Research
- Persuasive, Advocating, Informative
- Journaling
- Goal Setting
- Behavior Change
- Exit Slips, Reflection, Short Answer Questions

Great Practices in Speaking

- Class Presentations
- Small Group Discussions
- Technology Integration
- Advocating
- Health Fairs
- At-home Discussions

Great Practices in Language

- Proper Punctuation
- Grammar
- Spelling
- Proof-reading
- Structure
- Complete Sentences