Shhhhhhhh…… secret Option 3 & 4…….. Projectile Project Ideas

Pick **one** of these options to prove your physics knowledge of projectiles,
But you must have high creativity and/or special skills!
(the other standard options are described in your packet!)

The rubric is very general since these are untested projects:

40% correct physics shown by use of both numbers and concepts
25 % creativity- original work, imagination, not just following teacher's direction
25% entertaining – fun to watch or for others to use
10% team spirit – all worked and shared in project, used class time wisely

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Option 3: Writing your own physics based game (group of 3 max)

The best games are realistic, and use physics equations to control the motion. Projectiles move along parabolas, and gravity accelerates all masses equally. Hence, the programming code includes physics formulas, the same ones in class!

So look at some games online to get ideas of some fun and simple animations.
Then try to write your own simple game using any language you know & own.
You can also modify another existing game but these modifications should be major.
Adobe Flash CS3 is the most popular method to animate, and is relatively easy.
School computers are limited so you may want to use your own computer.
See my website for examples including how to program in flash.

Basic Requirements:

Visual Game based on your own program that shows how projectiles behave.
Game must work in class using school computers or your own.
Copy of computer code program (file or print out text of programming lines)
Short (1-2 page) description of project and tips for future students doing this project.
Game content should be school appropriate and aligned with our Pillars of Character.

Resources:

http://www.howcast.com/videos/11801-How-To-Implement-Simple-Physics-and-Gravity-in-a-Flash-Game flash gaming in 5 minutes-very easy to follow!

http://www.physicsgames.net/ - physics games that may steal all your time
http://www.w3schools.com/Flash/default.asp flash tutorial, step by step
http://www.math.tamu.edu/~dallen/physics/ examples of flash programs
http://www.flashgameu.com/ lots more tutorials and advanced flash programming

Option 4: Claymation (group size 4 max)

Animators who create cartoons, video and computer games utilize their understanding of projectile motion so they can realistically portray the motions of their characters and the scenery in the story. Typically, one first has an idea for a short story with props and characters. Then a flip book or series of story boards are drawn by hand to capture the story one second or so at a time. The exact x and y position of the objects is calculated using the physics equations, organized in a chart, and then drawn to scale on the story boards. Then each page is photographed, and combined together in a video to make a smooth running movie.

Basic Requirements:

1. Write an entertaining mini-drama where at least two objects are moving (at least one object is a projectile) with some music and/or dialogue . The content should be something mom or dad could watch without cringing!

2. Create at least 7 pages or story boards describing the scence, props, etc

3. Calculate the position of each moving piece and document in a chart (show an example of each type of calculation on a separate page)

4. Build a mini stage with lighting, props, backgrounds, etc

5. Reenact your drama and create a claymation video which combines each storyboard scene using any technology that works (see below)

Resources:

http://dogtrax.googlepages.com/animationcampoverview 3rd graders did this!

http://www.samanimation.com/ free software

http://www.clayanimator.com/english/stop_motion_animator.html free software & fun!

http://www-bioc.rice.edu/precollege/msdaniel/claymation.html how to do it step by step

http://www.xvidmovies.com/info/ - codec you might need to use Microsoft moviemaker

5. Goggle earth vector tour

    1. 10 locations- 10 vectors- angle & resultant
    2. pictures of destinations
    3. sales pitch
    4. video of tour
    5. calculate distance, time, and gas needed for each leg of trip