Susan German
Design and Storyboard for Interactive Flash Animation Project

1. **Description and Purpose**

- The title of my project is "An Inquiry Project using Newton's First Law of Motion."
- The purpose of the IAP is for students to practice inquiry skills while working with the concept of motion. Integrating inquiry skills with content makes for a powerful learning opportunity for the students. Users (students) will gain conceptual understanding about motion plus increase their inquiry skills by using them in an authentic situation.
- Students will be able to choose variables such as the mass of the weight added to the cart or the height of the ramp to manipulate. The cart will then be released and roll. Students will also choose how to measure the response: time of roll or distance the cart rolled. The data from these trials will be kept for students to graph. Using Flash will help students keep their information and will also act as a coach through the process. An example would be that students must enter their data after each trial into the table before being allowed to proceed. Students will also take diagnostic, formative and summative assessments as part of the animation to help students monitor their learning.

2. **Target Audience**

- The IAP audience will primarily be 8th grade students or younger.
- This IAP will be for students of all backgrounds, the language of the IAP will be English.
- I have special needs students each year. Next year, two students are wheel chair bound. It will be interesting to see if this provides a viable avenue for those students to participate easier with interactive activities.

3. **User Interactions**

- Set up: a flat bed cart (similar to the low friction carts that can be purchased), piece of wood for ramp (distance of wood 50 cm) ramp height can be typed in, weight (that can be selected by slider bar).

  Students will choose their independent (amount of weight or height of ramp) and dependent (distance cart travels per set time, or time how long the cart takes to travel a set distance). Then start collecting data. As stated, the interactive portion will be a slider bar for the weight or type in height of the ramp. Students will also need to decide how they will change their independent variable and measure their dependent variable.

Students will also decide how many trials they will do. At each decision, guidance will be provided if students choose a number that does not make sense for the experiment.

Students will engage in their experiment. After each trial, they will be provided with the opportunity to input the data from their experiment. (They will need to read the instruments of the animation).

Once done, students will need to take the data and graph the results.

- I would say with time to think and process the choices, perform the experiments, take the assessments, and construct the graphs that the user time will be 15 minutes for the IAP.

4. **Limitations of the Project**

- The movie will be Web application only. I use tables to control the size of my web page to 800 pixels. This keeps the content on the screen mostly. My main concern is the size of the file. Large files take a long time to download with slower connections which must be considered. Our technology person does not like to see files over 1 MB being placed on our webpages in order to accommodate for slower connection speeds.

5. **Resources**

- My project requires movie clips to be made for the individual animations.
- I have a CD with clip art that I might be using to help with the drawing aspect of the animation project. I am not an artist and do not want to get hung up with that aspect of the project.

6. **Project Schedule for production**

Activity	4/10	4/17	4/24	4/30	5/7	5/11
Collect movie content	x					
Format images and drawings	x					
Complete animations		x				
Complete version one of the project			x			
Peer evaluation				x		
Usability Testing			x			
Submit final project					x	x

Robert Gagne's Nine Steps of Instruction

1. Gain Attention:

Students will be provided a variety of cans (canned fruit, soup, dog food, etc). Students are to choose 2 cans and make a prediction (entered text) as to which can will roll down the ramp first. The students will have to drag and drop the cans onto the ramp.

2. Inform learner of Objective:

* Given an object in motion, calculate its speed (distance/time)

*Interpret a line graph representing an object's motion in terms of distance over time (speed) using metric units.

*Compare the effects of balanced and unbalanced forces on an object's motion.

*Explain that a change in motion is the result of an unbalanced force acting upon an object.

3. Stimulate recall of prior knowledge:

Using two tiered questions, I will pre-test student's knowledge of motion.

4. Present the material:

5. Provide guidance for learning:

Set up: a flat bed cart (similar to the low friction carts that can be purchased), piece of wood for ramp (distance of wood 50 cm) ramp height can be typed in, weight (that can be selected by slider bar).

Students will choose their independent (amount of weight or height of ramp) and dependent (distance cart travels per set time, or time how long the cart takes to travel a set distance). Then start collecting data. As stated, the interactive portion will be a slider bar for the weight or type in height of the ramp. Students will also need to decide how they will change their independent variable and measure their dependent variable. Students will also decide how many trials they will do. At each decision, guidance will be provided if students choose a number that does not make sense for the experiment.

6. Elicit performance:

Students will engage in their experiment. After each trial, they will be provided with the opportunity to input the data from their experiment. (They will need to read the instruments of the animation).

Once done, students will need to take the data and graph the results.

7. Provide feedback:

  With all of the opportunities to enter data, guidance and feedback need to be provided to make certain students do not have the wrong information.

8. Assess performance:

Students will be given a post assessment to look for content gains.

9. Enhance retention and transfer:

Refer students back to the opening activity and ask them why there is a difference in motion (speed) between two cans of food the same weight.

Reviewers Comments

From students in the Flash class:

Hello,

The design plan you uploaded wasn't the design plan - that was the project description. I didn't know if you uploaded the wrong one or if you saw the overlap of the two assignments in some areas, so I thought I would mention it. The Design Plan covers some areas the description does not.

How are the students going to get between the action with the stopwatch and the graph? Will you make additional buttons for each page?

Don't forget to include the quit activities and screen (basic element 7).

I only glanced at the powerpoint, so I may not have seen this, but where is your audio going to be (basic element 8).

I think that's everything!

Cari

Susan,

Your design plan looks great. It's well organized and easy to navigate through. Like Cari, though, I am wondering about the sound element of your project. Where will that be? It looks like it'd be great to put in with the investigation section. Maybe a car zooming along? Also, will you have any animations? Or is the car going to be the only animation?

Also, will there be an exit screen for the project?

Nice job!
Krysten

From Betsy O'Day – 5th grade science teacher

Susan,

I liked the inquiry with trial options. I also like that the user gets to choose from options for variables. On the storyboard, I have some questions: Does the slider give you a number of blocks? Not sure how the investigation is set up in the box on slide 5 – I just can't visualize it.

Betsy.

My response

I added the exit screen to the project. I also added navigation buttons. The more I think about it, I may switch to a navigation menu found on each page. This will allow for more flexibility in navigation. I will add sound to the investigation page. I thought the car would honk twice before starting to give the user time to start the stopwatch. I also thought about adding cheering on the final assessment for correct answers and a "try again" for incorrect answers. I also need to work on the investigation/choose your variable page. I want to make certain that if the user chooses to change the mass added to the car, that they do not need to constantly be clicking back and forth between scenes. I need to have a box or something on the investigation page that the user can pick their variables from (such as more bricks to raise the ramp height). I want it to be a click and drag interaction for the user.