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Teaching 21st Century Skills with Academic Content
EDSE 351
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Cartoon Physics

9th Grade Physical Science

Objectives:

Students will analyze the cartoon and pick at least 5 different examples of physics seen in the cartoon.

Students will demonstrate that any object does not accelerate unless an unbalanced force acts on it by completing the Cartoon Physics worksheet with 80% accuracy. (Physical Science 9.22)

Students will explain that change in motion of an object and demonstrate that the acceleration is proportional to the net force on the object and inversely proportional to the mass of the object by completing the Cartoon Physics worksheet with 80% accuracy. (Physical Science 9.23)

Students will demonstrate that whenever one object exerts a force on another, an equal amount of force is exerted back on the first object by completing the Cartoon Physics worksheet with 80% accuracy. (Physical Science 9.24)

Students will demonstrate the ways in which frictional forces constrain the motion of objects by completing the Cartoon Physics worksheet with 80% accuracy. (Physical Science 9.25)

In groups, students will create their own laws of physics by completing the Cartoon Physics Part 2 worksheet with 80% accuracy.

Rational:

Having the students watch a cartoon and analyzing the physics seen in the cartoon, they will be able to apply the information that they learned in physics class. They will be able to apply what they have learned to the real world, or a real world situation. The students will also create their own laws of physics that apply to the cartoon, the students will have to use their full understanding of the laws of physics and how they were created to create their own laws. The students will also be able to learn about media literacy, they will be watching cartoons and deciding what can and cannot happen and they can apply what they do in this assignment to other forms of media, such as action movies, TV and video

games. The students will be using critical thinking skills to come up with their own explanations of what would happen if the laws of physics were applied to the cartoons. The students will also be using creativity and innovation when they create their own laws of physics for the cartoon. The students may have to create their own rules, regulations or laws in the real world if they choose to have an occupation that requires them to make rules or laws. The students also have freedom to create whatever laws that they want, as long as fit with the cartoon. The students will also be learning about communication and collaboration; they will be working in groups when they create their own laws of physics. Students may choose an occupation where they have to work as a team to accomplish a common goal and this activity will help them learn the skills that they need to work in a group successfully.

Standards:

Physical Science 9.22: Demonstrate that any object does not accelerate unless an unbalanced force acts on it.

Physical Science 9.23: Explain that change in motion of an object and demonstrate that the acceleration is proportional to the net force on the object and inversely proportional to the mass of the object.

Physical Science 9.24: Demonstrate that whenever one object exerts a force on another, an equal amount of force is exerted back on the first object.

Physical Science 9.25: Demonstrate the ways in which frictional forces constrain the motion of objects.

Materials:

Computer
PowerPoint
Internet- YouTube
Projector
20 copies of the Cartoon Physics Worksheet

The internet will be one of the main sources in teaching the students about media literacy. I will be showing the students a cartoon from YouTube, and the students will be searching for more cartoons when they complete the second part of the activity. The students can also apply what they will learn from this lesson when they are on the internet watching other videos on YouTube or other sources, movies and when they play video games.

Procedures:

Activity: Students will watch a video of a Road Runner and Wile E Coyote cartoon and taking notes on 5 examples of physics that they see. I will be teaching the students about media literacy, the students will be watching a cartoon and they will be picking out different examples of physics that they see.

Time: 10 minutes

Activity: Students will be working by themselves on the Cartoon Physics Part 1 worksheet. They will be filling out the information on the scenarios in which an example of physics took place, what law of physics was present/absent and what would happen if the law of physics was broken was applied to the scenario. The students will be learning about critical thinking when they come up with ideas of what would happen if the laws of physics applied to the cartoon. The students will have to take the information what they have learned throughout the year and apply that information to what they have observed in the cartoon.

Time: 30 minutes

Activity: Students will be working in groups to create their own laws of physics that apply to the Road Runner and Wile E Coyote cartoons. The students will be using the internet and YouTube to search and watch for more Road Runner and Wile E Coyote cartoons and using the information that they find from watching the cartoons to write their own laws of physics. Each student will be responsible for contributing ideas to the group, and they will also be responsible for turning in their own work. I will be teaching the communication and collaboration skills by explaining to the students about how to work in a group effectively. The students will have to fill out a sheet that explains what contributions each group member made. Students will also be learning about creativity and innovation because they will be creating their own laws of physics that apply to the cartoon. The students will have a lot of creative freedom in designing their laws of physics, I will not place many restrictions on what they can and cannot do in this assignment.

Time: 45 minutes

Adaptation:

For a student with ADHD, there are many things that I can do to help them keep on track and focused in the lesson. I will have the student pass out papers, this gives them the opportunity to get up and move around. I will also give them a checklist at the beginning of class so that they know what will happen in the lesson and this will also help them keep on track. The nature of the lesson will be broken up into different segments, this will help the student keep their focus and it will give the students breaks in between each segment of the lesson.

Assessment:

The students will be completing 2 worksheets, Cartoon Physics Part 1 and Part 2. The worksheets will be graded and counted as a lab grade.

The students will also need to know the information that they have learned in this activity for the up coming test, the students will have to give an example from the activity on the test.

Students will also be filling out group evaluations, and this will effect the grade that they receive on the Cartoon Physics Part 2 worksheet.

Name _____ Date _____

Cartoon Physics Part I

As you watch the Road Runner and Wile E Coyote cartoon, look for scenes where you can see the laws of physics either being obeyed or broken.

You need to find 5 examples from the cartoon where physics is being applied.

For each law of physics, you have to write out the entire law, not just state it.

If you use the same law more than once, you only have to write out the law once.

Example 1

What happened?

Law of Physics:

If the law was broken, what should have happened?

Example 2

What happened?

Law of Physics:

If the law was broken, what should have happened?

Name _____ Date _____

Cartoon Physics Part 2

For this assignment, you and your group will be working on your own set of laws of physics that apply to the Road Runner and Wile E Coyote cartoon.

You and your group will have to watch several movie cartoons to create your own laws of physics. You will need to go to [YouTube.com](https://www.youtube.com) and search for Road Runner and Wile E Coyote cartoons. I suggest you watch at least 4 more cartoons to complete this assignment.

After you and your group have watched the cartoons, you and your group will have to write your own laws of physics specifically for the Road Runner and Wile E Coyote cartoons.

Each member of the group is responsible for contributing to the assignment and everybody has to turn in their own paper.

Name _____ Date _____

Cartoon Physics Group Evaluation

You will be evaluating your group members that worked on the Cartoon Physics assignment. Your group members will not see this paper, so try to be as honest as you can.

Name:

Contributions:

Grade you would give them:

Name:

Contributions:

Grade you would give them:

Name:

Contributions:

Grade you would give them:

Name:

Contributions:

Grade you would give them: