

Apothis Collision Role-Play Activity

Objectives:

- Students will read and interpret information regarding possible scenarios for a collision with Apophis
- Students will do research regarding their roles in the role play activity
- Students will present information to a group using presentation skills
- Students will present, to a group, a formulated opinion on research and provided information

Suggested Grade Level:

5th-8th

Subject Areas:

Science

Social Studies

Language Arts

Timeline:

One to two class periods

Standards:

Science as Inquiry

- Abilities necessary to do scientific inquiry
- Understanding about scientific inquiry

Earth and Space Science

- Structure of the Earth system
- Earth's history
- Earth in the solar system

Science and Technology

- Abilities of technological design
- Understanding about science and technology

Science in Personal and Social Perspectives

- Natural hazards
- Risks and benefits
- Science and technology in society

History and Nature of Science

- Science as a human endeavor

Language Arts

- Students read a wide range of print and non-print texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works
- Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies, and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics)
- Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes
- Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience
- Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge
- Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information)

Social Studies

People, Places, and Environments

- Technological advances connect students at all levels to the world beyond their personal locations

Individuals, Groups, and Institutions

- Institutions such as schools, churches, families, government agencies, and the courts all play an integral role in our lives

Power, Authority, and Governance

- Understanding the historical development of structures of power, authority, and governance and their evolving functions in contemporary U.S. society, as well as in other parts of the world, is essential for developing civic competence

Science, Technology, and Society

- Today's technology forms the basis for some of our most difficult social choices

Global Connections

- The realities of global interdependence require understanding the increasingly important and diverse global connections among world societies

Civic Ideals and Practices

- An understanding of civic ideals and practices of citizenship is critical to full participation in society and is a central purpose of the social studies

Background:

After students have completed the virtual lab, questions may develop as to the social and civic situations that may arise from a collision with Apophis. This role play activity gives students an opportunity to voice their concerns and opinions to this situation.

An introduction of natural disasters such as hurricane Katrina and the tsunami in Indonesia, will give students an idea of what we would be facing; but on a much bigger scale. Such topics to discuss would be devastation in the way of property, loss of life, emergency response from government agencies and the world.

After hurricane Katrina, U.S. agencies such as FEMA were criticized due to their slow and inadequate response to the disaster. After the tsunami in Indonesia, though, you saw an outpouring of support from the world in the way of money and personnel. After the 9-11 terrorist attacks on the World Trade Center and the Pentagon, government agencies such as the FBI were criticized because they knew about the impending attacks, but the information was not passed along the chain of command or given to the public.

These are just three disasters of recent years that have shaped the way we respond to disasters. FEMA, now, has a much improved system in responding to natural disasters. The result of the 9-11 attacks are better security at airports, and the formation of the Office of Homeland Security which watches over the U.S. and protects it from terrorist attack.

For this activity, the teacher may wish for students to take one class period to research their role. They will want to have answers to possible questions written down; along with statements they would like to make to the committee.

The President and his/her advisors will want to provide two to three questions to each committee member. These are questions that the President will ask each particular committee member. While students are doing research on their role,

the President and advisors can write down questions which they will want to ask the other students.

There may not be enough role play cards for every student. If this is the case, have students double-up on some of the roles. Make sure every student has a role play card that he/she can put around their neck so the members of the committee know who each student is.

Materials:

Role-playing cards, string or yard, methods to do research such as computers, encyclopedias, newspapers, etc.

Lesson:

1. As an introduction to the lesson, the teacher will want to discuss Apophis and the Virtual Lab activity. Refresh student's memories about the problems, the solutions and the science behind both.
2. Tell the students that today we are going to take a more "human" approach to the situation. They will be taking part in a role-play activity. Each person will be given a role. ***Make sure you tell students that they may not agree with the role they are playing. That is OK. However, they must play their role to the best of their abilities. They will have an opportunity to express their personal opinions after the role play activity.***
3. You may randomly assign roles or have students draw their roles from a hat. *Note: You may want to have your better students play the roles of President and advisors. You want students that will create good questions for the committee and that will require students to back-up their positions. These students are responsible for keeping the discussion going.*
4. After students have been assigned their roles, give them an opportunity to research their role or ask you questions about their role. You may also want to give students time to put a presentation together. See "Extension Activity."
5. While students are researching their roles, have the President and advisors create two or three questions that they will ask each committee member. These don't have to be the only questions they will ask each member; but it gives the committee members an idea of what will be asked of them, and it also gives them a chance to formulate a response. When the questions are prepared give them to the specific committee member. This will give them an opportunity to create responses for each question. This, too, will give each committee member a chance to write down statements they would like to present to the committee. (At the conclusion of the lesson plans is a Procedures for the President sheet to guide the President on how to run the meeting.)
6. When students feel prepared for the committee meeting you can set up the room. You may also want to have them take notes during the meeting to keep track of what points have been made and by whom.

7. Set up the room so that the President and advisors are at the head of the class. The committee members may be seated in a circle facing the President. If space is limited, you may have the committee members sit in two semi-circles or have students align their desks in a long rectangle similar to a conference table.
8. To begin the activity, have each student stand up and introduce who they are, and what role they will be playing. Make sure students don't give away too much information in their introductions about the position they will be taking during the activity.
9. Have the President begin the meeting by stating why they are at the meeting, and the decision that he/she is faced with. The President wants every committee member to be candid and honest in their responses. Have the President lay down the rules of the meeting. Each committee member will be asked two to three questions and then given a chance to respond to the questions. During the initial questioning period, no one may interrupt the person giving an answer. They will have time for discussion after the initial round of questioning. During the initial questioning committee members must answer that question only, but be very thorough.
10. Committee members must also remember to NEVER interrupt the President. If the President needs to make a statement everyone must stop and listen. That is why it is important to have a student playing the President who will take control of the meeting and is not afraid to speak out.
11. After the initial round of questions, the President or advisors may ask any follow-up questions they may need.
12. At this point of the meeting, an open discussion can be started by the President. This will allow students to openly recite any opinions that their "character" may have.
13. After the open discussion, the President may conclude the meeting at any time. The President and advisors will then adjourn to make a decision. After a decision has been reached, the President will announce his/her decision to the committee. (It is important for the President to make a decision based on the committee's facts, not his/her personal opinion.)

Extensions:

You can add another class period to the role-playing activity. Students can use that day to do research on their role that they will have during the activity. This will give the students more information to support their position. The students may also create a PowerPoint presentation to support their position.

Another role play activity may be created from the point of what should be done after Apophis hits. What emergency supplies and procedures will be needed? Who needs to be contacted? Where should we go before and after the impact? etc.

Evaluation/Assessment:

Observation of role play, role play rubric (Give the students the rubric before doing research on their roles. This will give students an idea of what is expected of them during the activity.

Resources:

National Science Standards: <http://www.nap.edu/readingroom/books/nse/>

National English & Language Arts Standards:
<http://www.ncte.org/about/over/standards/110846.htm>

National Social Studies Standards:
<http://www.socialstudies.org/standards/strands/>

NASA: <http://www.nasa.gov>

Wikipedia: <http://www.wikipedia.org>

Procedures for the President

1. Make introductions. Introduce yourself and your advisors first. Have each person state which role they will be playing for the activity.
2. The astronomer and scientist do not have opinions. They are strictly there to give you technical information. The **astronomer** will give you any information on Apophis. The **scientist** will give you information on what is being done to stop Apophis, and the possible success rate of each option.
3. State the procedures to be followed during the meeting.
 - **Initial round of questioning:** Each committee member will be asked two to three questions. They will be given a chance to answer. No one may interrupt.
 - **Follow-up questions:** The President and advisors will ask any needed follow-up questions of any committee member. No one may interrupt.
 - **Open discussion:** After the follow-up questions, there will be an opportunity for anyone to speak. Committee members may share any opinions or information that they didn't get a chance to share during the initial questioning.
 - **No one may interrupt the President.** When the President speaks, everyone must listen.
4. After the discussion, the President and advisors will adjourn to make a decision.

Role Play Rubric

Skills	A	B	C	D	F
Prepared for discussion/ Presentation Materials	Student was thoroughly prepared (knew and understood material, presentation materials were excellent)	Student was thoroughly prepared (presentation materials were good)	Student was thoroughly prepared, but no presentation materials	Student was somewhat prepared for the discussion	Student was not prepared for the discussion
Oral Presentation	Student's oral presentation skills were excellent. Voice was clear and loud. Eye contact excellent	Student's oral presentation skills were good. Volume and eye contact was good, but could have been better	Student's oral presentation skills were adequate. Volume and eye contact were adequate	Student's oral presentation skills were poor. Voice not loud enough most of the time. Poor eye contact most of the time	Student's oral presentation skills were very poor. Voice could not be heard. No eye contact
Knowledge of Role	Student was thoroughly prepared for his/her role. Obviously did research prior to discussion	Student obviously did some research, but not at an excellent level	Student did some research, but only adequate	Student did very little research	Student did no research
Discussion Participation	The student was thoroughly engaged in the discussion and got others involved as well	The student was thoroughly engaged in the discussion	The student was somewhat engaged in the discussion	The student rarely got involved in the discussion	The student was not engaged in the discussion