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Lesson 1 - Activity: Start the Space Flight Time Line

Objectives:

The objective of this lesson is to provide students with the background for the space flight exploration science and technology unit. Another goal is to find out the prior knowledge the students bring to the class through open-ended questions.

The entire space flight exploration unit will be tied-in with the development of a time-line. This lesson will start the skeleton of the time line and will be "fleshed-out" as the unit progresses.

Estimated Lesson Time:

Two classes (1 hour each) [plus advanced homework assigned one week prior - see below.]

Classroom strategies:

Open classroom with music preludes, songs and lyrics, from popular space movies. Use open-ended questions to start the discussions on the history of space flight and key developments. Have groups go in random order when presenting homework results and then have them self-determine their topic on the correct place on the timeline (only date on timeline to start is 1957)

Science background Information:

(TBD - include thumbnail descriptions of advanced homework assignment of the seven key developments; also science fiction writers and cinema promote the idea of space flight)

Vocabulary:

1. Telescope - An optical instrument for making distant objects appear nearer and larger, consisting of one or more tubes with an arrangement of lenses, or of one or more mirrors and lenses, by which the rays of light are collected and brought to a focus and the resulting image magnified. Also, an instrument or apparatus

that serves the same purpose at other wavelengths of the electromagnetic spectrum.

2. Gravity - The attractive force by which all bodies tend to move towards the center of any other bodies with mass; the degree of intensity with which a body in any given position is affected by this force, measured by the amount of acceleration produced. The force of gravity is proportional to the mass of the attracting body and inversely proportional to the square of the distance to the center of that body.
3. Rocket - An apparatus consisting of a cylindrical case of paper or metal containing an inflammable composition, by the ignition of which it may be projected to a height or distance.
4. Gunpowder- An explosive mixture of saltpeter, sulfur, and charcoal, chiefly used in discharging projectiles from guns and for blasting.

Materials and Equipment:

Timeline and music

Advance Preparation:

1. Gather and display space-related material
2. Set up adequate space for time-line in class room to be used for the entire unit
3. View space-related videos and web-sites
4. Assign homework described below prior (~one week) to start of Space Flight Timeline Unit.

Advance Homework Assignments:

1. Assign eight significant events from early time until start of the space age (First artificial satellite, Sputnik, 1957) to eight different groups of students one-week prior to this lesson. These will be used in the classroom to build the time-line skeleton. If the students miss any key event, be prepared to fill-in. When assigning homework, only give key event and make student find the year of discovery or event and by whom.

Key Events assigned as prior homework

1. Gun Powder (answer: invented in China 960)
2. Telescope (used by Galileo 1609 ; he used it to find four satellites of Jupiter)
3. Gravity (described by Newton 1687)
4. From the Earth to the Moon (written by Jules Verne, 1865)
5. Space rocket (designed Konstantin Tsiolkovsky, 1903)
6. First US unmanned space rocket launch, (Robert Goddard in Massachusetts, 1926)
7. German V-2 rocket developed (by Werner Von Braun, 1945)

Activity:

Student groups present results of advanced homework, followed by

discussion of each topic - teacher adds material not researched by groups. Class then adds the title of their group's event on the timeline at the correct date. (Teacher suggestion: save written reports to be compiled into a "History of Space Flight" book at end of Space Flight Unit)

Homework Assignment:

Have students research the significance of 1957 as related to space flight.

References:

1. Journey to the Moon Time Line (Evan-Moore)
2. Travelling in Space (Troll Associates)
3. Rockets, Missiles, and Spacecraft of the National Air and Space Museum (Smithsonian)
4. Blueprint for Space (Smithsonian Institute Press)
5. Discovery (NASA Educational Product)
6. History of NASA: (<http://www.hq.nasa.gov/office/pao/History/>)

Connections:

1. Literature/Language Arts: From the Earth to the Moon (Jules Verne), War of the Worlds (H. G. Wells)
2. History: China, Gunpowder and other?
3. Movies: [Flash Gordon](#) (1936), [A Trip to the Moon](#) (1914), [Buck Rogers](#) (1940)
4. Music: Star Trek Monologue

7 April 1999

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