

GED 2002 Teachers' Handbook of Lesson Plans

Area/Skill - Science	Cognitive Skill Level - Application	Correlation to Science Framework - 03.03/03.06	Lesson Number - 03
<p>Activity Title - First You See It - Auroras!</p> <p>Goal/Objective</p> <p>To read and comprehend a science article on auroras and create a class bingo game with the scientific terms.</p> <p>Lesson Outline</p> <p>Introduction</p> <p>Many observable facts occur within our own atmosphere. Lots of these happenings can be explained through science. The colored lights in the sky or auroras are one of those scientific phenomena and may be seen in the early morning or even late in the evenings.</p> <p>Activity</p> <p>Provide a brief overview of auroras. You may wish to use science resource materials or access information from the Museum of Science, Art and Human Perception website. Discuss briefly an aurora's appearance and how they are created. Have students read the handout and discuss the information with a partner. Have each pair of students create player cards and answer cards for a bingo game on auroras. The partners will prepare the game using the science terms within the handout. After the game pieces are completed, have the students share their game with the class and play "Aurora Bingo."</p> <p>Debriefing/Evaluation Activity</p> <p>Have the students use a game format such as Bingo to help them learn science terms and concepts that relate to real life. Discuss the need to understand science terms and concepts and their application as a skill required by the GED Tests.</p>		<p>Materials/Texts/Realia/Handouts</p> <ul style="list-style-type: none"> • Handout - Auroras - How Do They Happen? • Index cards, markers, paper • Computer/Internet connection • Printer • Museum of Science, Art and Human Perception website http://www.exploratorium.edu/learning_studio/auroras/happen.html 	
		<p>Extension Activity</p> <p>The Northern Lights appear in the Northern Hemisphere. Is there anything comparable to this in the Southern Hemisphere? If so, what is it called and where is it seen? Have students research this question through using materials available in the classroom, the Internet or library resources. Have them report their findings to the class.</p>	
<p>Real-Life Connection</p> <p>Discuss with students how games can assist us in learning information. <i>Ask:</i> How do you learn best? Do you like to have fun when learning? In what way could a game help you learn more about auroras? Will the information learned about auroras help you understand more how the beautiful colors come to be in the sky? How do games help you learn things in your workplace or community?</p>		<p>ESE/ESOL Accommodations</p> <ul style="list-style-type: none"> • Prepare glossary of terms and introduce new vocabulary prior to the lesson. • Ask the student to paraphrase key points in his or her own words and identify anything that is still unclear. • Highlight important concepts in the reading handout. • Provide a "cheat sheet" of words or concepts. 	

GED 2002 Teachers' Handbook of Lesson Plans - Script

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Activity Title - First You See It - Auroras!

Introduction

Ask: Has anyone ever seen an aurora before? Discussion may have to lead to what an aurora is. Answers may include: the dawn, the rosy tint in the sky before the sun arises, and orange-red tint or some students may even connect to the aurora borealis, the northern lights.

Main Activity

Say: We are going to read an article that discusses auroras and has some terms with which you should be familiar. In order to become more familiar with these terms, we are going to make a bingo game card and answer cards to go with it. After you have completed the game, we will play the game in class.

You will need to provide game cards and sentences strips for the activity. Making game cards will provide the class with a way to learn terms and concepts. These cards can be used for other subjects as well.

Divide the class into small groups or pairs. Have them work together to make the cards and develop the questions for the game. Play the game in small groups or with the entire class.

Closure/Conclusion

Ask: How can familiarity with scientific terms be helpful to you in your daily life and in successfully passing the GED Tests? Answer should focus on the aspect that science is all around us and is part of our daily lives.

Follow-Up Lessons/Activities

After studying the auroras, have the students create pictures showing how the auroras look in the night sky. Have students write a brief description of the aurora depicted. You may wish to have an art exhibit of the aurora pictures for the students to enjoy and discuss.

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Science Lesson Plan 3 Handout

Auroras in the Sky – How Do They Occur?

Picture green and red flames of light stretching across the sky. Almost like a glowing curtain of light, the colors wave and swirl above you and then fade away and darkness returns.

Does that sound like something truly awesome? That is indeed what an aurora inspires – awe at the beauty in the sky.

Since ancient times, man has been fascinated by auroras in the sky – those beautiful, swirling lights. But how have auroras come to be? Before we can understand how auroras are made, we need to learn a few facts about our Earth and the space around it. There are many things in the space around the Earth that we can't see. The first thing is what we need in order to breathe, our atmosphere. Our atmosphere is made up of several layers of gases surrounding the Earth. The outer-most layer is called the ionosphere and is very important in the study of auroras. There is also a giant magnetic field surrounding our planet. The Earth's core is made up of many metals, which act like a giant magnet stuck right in the middle of our planet. This creates a magnetic field around the Earth called the magnetosphere. The magnetosphere extends far out into space. Just like any magnet, the Earth's magnetic field can affect objects nearby.

But Earth is not the only place where a magnetic field exists. The Sun also has a magnetic field. Because the Sun is so hot, atomic particles are constantly boiling off of its surface and moving at very high speeds. The Sun's magnetic field and the streaming particles are called the "solar wind." This "solar wind" pushes on the Earth's magnetic field and changes its shape, very much like you change the shape of a soap bubble by blowing on it.

Scientists believe that the way the solar wind affects the Earth's magnetosphere is an important part of what causes auroras. Although there are many things about how auroras happen that are still unknown. We do know that has a magnetic field too. Also, atomic particles are constantly boiling off the Sun and moving outward at very high speeds. Together, the solar magnetic field and streaming particles are called the "solar wind." This wind is always pushing on the Earth's magnetic field, changing its shape. You change the shape of a soap bubble in a similar manner by blowing on its surface. This artist's illustration shows the shape of the Earth's magnetic field in the solar wind. The way the solar wind affects the Earth's magnetosphere is an important part of what causes auroras.

Many things about how auroras happen are still unknown. However, scientists do know that when there is a great deal of solar activity, there are also "bigger" aurora events on earth. Strong solar winds cause larger numbers of energetic particles to be injected into the Earth's magnetosphere. The collisions between these energy particles and those of the Earth give off energy that we see as colored light or auroras.