

Title of Session: Beyond Penguins and Polar Bears - Solar Energy

Moderator: Kimberly Lightle

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Room: Beyond Penguins and Polar Bears Group

JeffC: We usually start with introductions. Before Kimberly gets going with the website etc., if people could type in a few sentences about themselves (what you teach and where, interests in science, global warming, etc.).

TuniseG: hello I am a student teacher from Houston, UH. I am placed in kinder and first grade at a public elementary

PatrickRC: I'm currently observing in a 7th grade social studies class in a small college town in Michigan. I've always been interested in science, and global warming has caught my eye.

TuniseG: I am more interested in hands on activities that teach students about science

MariaMR: I am a student teacher currently In Fort Bend ISD, currently in first grade bilingual.

JessicaRep: Hello. I am also a student teacher at the University of Houston. I am currently in Pre-K and will be switching to 2nd grade on Monday.

MariaMR: I love science and I am always looking for new ideas to teach interesting lessons.

KimberlySL: I don't think I welcomed Patricia - welcome!

TuniseG: hello my fellow UH student teachers

DavidW: I'm David Weksler one of the HelpDesk volunteers for Tapped In. I'm in New Jersey

PatriciaDA: Hi, I am a Nyack student, who is getting familiar with Tapped In. I will teach Early Childhood Ed, but I am also interested in science

KimberlySL: Sounds like a great bunch - Before we get started I wanted to say that if you look in the Featured Items on the Beyond Penguins Tapped in room there is a file called RoadMap to 10/9 chat - that's what we'll be going over today

JeffC: ok... excellent! I'm Jeff Cooper also on Helpdesk here. I'm in Forest Grove Oregon.

KimberlySL: You don't need to open the file but just in case you miss anything...

JeffC: two other things... if you wish, you may Detach your chat (Actions menu-- Detach) and make it larger... as well as the font (Actions-- Larger Text). The top frame will become a separate window.

KimberlySL: Tonight we're going to talk about Solar Energy and the Polar Regions. I want to start at the issue page of our latest issue of the magazine – Energy and the Polar Environment - <http://beyondpenguins.nsd.org/issue/index.php?date=October2008>. This will be home base.

JeffC: the second thing is that if any link is typed into chat, it will work, but you need to hold the Ctrl key down when clicking or your popup blocker will log you out.

JeffC: or... accept popups from this site (or turn off your popup blocker).

KimberlySL: Go ahead and click on the homepage and look at the layout - departments and columns - each issue is laid out that way

TuniseG: ok

KimberlySL: We've had 7 issues - all the other issues can be found by clicking on Archive in the header of the webpage

KimberlySL: I want to start with the word albedo – have any of you heard of it before? BTW – the “e” is pronounced as a long “e.”

KimberlySL: Guess quote marks don't work so well when you cut and paste them...

TuniseG: no I have never heard of this term before, it's unfamiliar

MariaMR: I never heard it

PatriciaDA: No, I haven't either

JessicaRep: No, I have not heard of that word before.

KimberlySL: Once the sun's energy reaches earth, it is intercepted first by the atmosphere. A small part of the sun's energy is directly absorbed, particularly by certain gases such as ozone and water vapor.

KimberlySL: Some of the sun's energy is reflected back to space by clouds and the earth's surface.

KimberlySL: Most of the radiation, however, is absorbed by the earth's surface. When

the radiation is absorbed by a substance, the atoms in the substance move faster and the substance becomes warm to the touch. The absorbed energy is transformed into heat energy.

KimberlySL: BTW - If I need to slow down - just say whoa!

TuniseG: ok

KimberlySL: Now let's click on the Science Content Knowledge link under Professional Learning.

KimberlySL:

<http://beyondpenguins.nsd.org/issue/column.php?date=October2008&departmentid=professional&columnid=professional!science> and look at the third image

TuniseG: ok, I'm here

KimberlySL: This is the Science Content Knowledge article under the heading Professional Learning

KimberlySL: Are you all with me?

TuniseG: yes

MariaMR: yes

PatriciaDA: yes

JessicaRep: yes

JeffC: <http://snurl.com/penguins1008> [beyondpenguins_nsd_org] is a redirect for the above link.

KimberlySL: Thanks Jeff

KimberlySL: What does the third image show?

TuniseG: radiation levels from the sun

MariaMR: It is an explanation about how solar energy is distributed

KimberlySL: Yes - radiation comes from the sun - some is reflected and some absorbed

KimberlySL: Now read the next section - REFLECT OR ABSORB - What is albedo?

TuniseG: percentage of solar radiation reflected back into space by an object or surface

MariaMR: the percentage of solar energy reflected back into space

JessicaRep: The percentage of solar radiation reflected back into space.

KimberlySL: Great

KimberlySL: Earth's average albedo is about 0.3. In other words, about 30 percent of incoming solar radiation is reflected back into space and 70 percent is absorbed.

KimberlySL: New question - After reading ICE, CLIMATE CHANGE, AND THE EARTH'S ENERGY BUDGET section, answer the following questions – What effect does melting ice have on earth's albedo? Why does it matter?

TuniseG: melting ice does not absorb as much radiation as it could, leaving the radiation to be absorbed by land and ocean

KimberlySL: Ice reflects radiation - it has a high albedo - it doesn't absorb

KimberlySL: When the ice is not there more of the radiation is absorbed and things get warmer

KimberlySL: What happens to ice when you put it into warm water?

MariaMR: melts

TuniseG: it melts

KimberlySL: Yep - look at the visual in that section of the article - what does it show?

MariaMR: a chain that keeps repeating

PatrickRC: It shows a cycle that when ice melts, it lowers the albedo, with a lowered albedo, more light is absorbed, with more light being absorbed, the land gets warmer melting more ice.. and so on continuing the cycle

TuniseG: radiation is absorbed more in the north part of the continent

KimberlySL: That's it - a positive feedback loop

KimberlySL: And it's not a good one - this is first time on record that ships have been able to move completely through the Arctic Ocean

JessicaRep: It shows a continuing cycle of ice melting, causing the albedo to drop, and the more light being absorbed into water and eventually the land.

JessicaRep: That can't be good...

PatrickRC: but the record isn't that old... no offense

KimberlySL: Well - people have been exploring the arctic for a while - something is happening

TuniseG: no I don't think this is good

MariaMR: I agree

KimberlySL: Let's go on to Lessons and Activities - go back to the issue page and click on Lessons and Activities under Science and Literacy - <http://beyondpenguins.nsd.org/issue/index.php?date=October2008>

MariaMR: It is not good

TuniseG: ok

KimberlySL: The lessons have been categorized by K-2 and 3-5. We've included lessons that integrate literacy.

KimberlySL: Take a couple minutes and look at a few of the lessons. Come back and share what you've found - all the lessons deal with energy, reflection, and absorption

KimberlySL: I really like the one from Teacher's Domain (which does require free registration) where students get to make s'mores in a solar cooker they have made

MariaMR: The lesson, The Warmth of the Sun is great

TuniseG: the few I looked at all are hands on

TuniseG: I love science that get you moving and exploring

KimberlySL: We are trying our best to get kids involved in the process

TuniseG: they also use technology in some

KimberlySL: True

MariaMR: I think the lessons are great about integrating other subjects

TuniseG: I agree

PatrickRC: They use differentiated learning very well, yes.

KimberlySL: Each issue has a non-fiction expository story written for grades 4-5 by a children's science writer. We take this story and write versions for grades K-1 and 2-3. Go back to the issue page and click on Feature Story under Science Literacy.

KimberlySL: This issue's story is called the Shiniest Moon

JeffC: I just wanted to pop in a link. Earlier this year my son and a friend did a science fair project that shows how melting icecaps could affect the currents in the Gulf Stream. It's not about albedo... but it shows another effect melting icecaps have. <http://snurl.com/liamcooper> ...just to point out that your own students might consider creating science fair projects along the lines of what Kimberly is talking about today.

JessicaRep: The lesson, Watts On Your Mind? - Using Thermometers is a great lesson. I am in Pre-K now and we just did a lesson on thermometers and how to use them properly. Our lesson was very similar to this one, except we wrote down their predictions and outcomes for them. The children really loved it.

KimberlySL: Wow Jeff

KimberlySL: Let's move on to Feature Story - Each issue has a non-fiction expository story written for grades 4-5 by a children's science writer. We take this story and write versions for grades K-1 and 2-3. Go back to the issue page and click on Feature Story under Science Literacy.

KimberlySL: Steve's story actually begins Far away from us in the outer reaches... (fourth paragraph). There are printable PDF files and electronic versions of the books.

KimberlySL: Scroll down and click on one of the electronic book links. Click on the paw to listen to the text being read to you.

TuniseG: I like this, I could use this in one of my lessons

JessicaRep: I clicked on the K-1 book. This is a wonderful tool to use in my future classroom!

KimberlySL: Tunise - Did you hear the sound? It's not working on my machine - guess I better look into that

MariaMR: The e-books are fantastic!

TuniseG: yes the sound is working

KimberlySL: Glad to hear it - we have similar books for each issue

JessicaRep: Wonderful!

TuniseG: great for nonreaders/ beginning reader

KimberlySL: To get to the other books - go to the link Browse Columns in the header and then click on Feature Story

KimberlySL: Next month we'll have a link in the header that says "Stories for Students"

TuniseG: oh ok, I will make sure to bookmark this site

KimberlySL: Next is Literacy Content Knowledge

KimberlySL: Each issue focuses on a literacy strategy – this one focuses on Note Taking. Go back to the issue page and click on Literacy Content Knowledge under Professional Learning. This article contains templates that can be used with the Feature Story.

JessicaRep: This site is a wonderful resource!

MariaMR: I agree!

KimberlySL: Thanks so much - I'll share your thoughts with the other people that work on the project.

KimberlySL: I wanted to end up at the Virtual Bookshelf. Go back to the issue page and click on virtual bookshelf. Are you familiar with any of these books?

TuniseG: no I am not

TuniseG: oh The Polar Express, yes

JessicaRep: No.

TuniseG: the cloud book

KimberlySL: We pick children's books for every issue

TuniseG: oh ok, yes a few of them I have read

MariaMR: They are not familiar but they look interesting

JessicaRep: They all look very interesting and seem like they would appeal to children.

KimberlySL: A children's librarian helps us pick them out.

JessicaRep: This is another great way to integrate literacy into a science lesson!

KimberlySL: Tunisie - not sure you are on the virtual bookshelf for this issue - <http://beyondpenguins.nsd.org/issue/column.php?date=October2008&departmentid=literacy&columnid=literacy!bookshelf>

KimberlySL: Free web seminar

KimberlySL:
http://learningcenter.nsta.org/products/symposia_seminars/NSDL3/Webseminar3.aspx

TuniseG: oh ok. I was in the wrong place

KimberlySL: The web seminar is over this topic - and is co-sponsored by the National Science Teachers Association. It will be Thursday, November 13, 2008 Time: 6:30-8:00 p.m. Eastern

KimberlySL: One more thing - many of our articles are written by guest contributors - if you would like to write for the magazine we would love it

DavidW: Who would be the best person to contact, Kim?

KimberlySL: We've Just Looked at the Tip of the Iceberg on Issue 7 - there are articles on misconceptions, research stories, teaching strategies. Lots of issues and articles are left to explore!

KimberlySL: David - contact Jessica Fries-Gaither - fries-gaither.1@osu.edu

DavidW: Thanks, Kim

KimberlySL: She is the project director - we are going to do 13 more issues and have some wonderful themes coming up

KimberlySL: So - each issue is thematic - everything revolves around that issue.

MariaMR: It is very well organized

KimberlySL: Patrick - our first issue was all about a sense of place - geography - you might want to check it out
<http://beyondpenguins.nsd.org/issue/index.php?date=March2008>

JessicaRep: Did this project just start this year?

KimberlySL: We would appreciate any feedback you have - we also have a survey you can take and get entered in a monthly drawing for a \$50 gift certificate from Amazon - <http://beyondpenguins.nsd.org/>

KimberlySL: Jessica - funded one year ago - first issue in March 2008

KimberlySL: BTW - do you like the pink polar bear?

DavidW smiles

TuniseG: yes

DavidW thinks back-lighting has something to do with that

TuniseG: yes

MariaMR: I love it

KimberlySL: Yes - a sunset is reflecting on the polar bear! (and maybe a filter is helping)

JessicaRep: The sun is beautiful.

KimberlySL: If you click on the headings on an issue page - you'll see more beautiful photographs

JeffC: I'd like to mention to everyone here that you should consider joining this group. To do that, click the little "i" in the Welcome box in the top frame then the "join this group" link. If you've detached your chat, it's in a separate window.

KimberlySL:

<http://beyondpenguins.nsd.org/issue/dept.php?date=October2008&departmentid=literacy>

DavidW: We had an interesting discussion about a web-based tool for teaching about earthquakes on Tuesday. Are there earthquakes in Polar Regions?

KimberlySL: The issue we are working on is just that - I'm not the expert but I would say yes - in Antarctica. Mt. Erebus is an active volcano and shoots lava everyday.

DavidW smiles

KimberlySL: That issue will be out December 1 - next month's issue is how to put on a polar festival

KimberlySL: Any questions?

JeffC: <http://snurl.com/penguins1008literacy> [beyondpenguins_nsd_org]

KimberlySL: BTW - I'm the Principal Investigator on this project - I'm at Ohio State

University and funding is through the National Science Foundation

JessicaRep: Not from me. I am very pleased to have found another wonderful resource such as this one.

TuniseG: thank you for sharing this website and its resources, I will be checking back and trying to use some of these ideas in my science lessons

JeffC: thanks again Kim for a hot discussion on ice!

DavidW grins

DavidW: Great discussion, Kim, thanks

KimberlySL: No problemo!

MariaMR: Thank you so much. It is a wonderful resource

JessicaRep: Thank you, Kim!

JeffC: if you join this group, you may post to Discussion in this room (questions/comments/lesson ideas etc.)

KimberlySL: You're welcome - remember you will get a transcript of the entire conversation so you'll have the links where we went

MariaMR: Thank you, Kim. Wonderful discussion!

JessicaRep: Great!

KimberlySL: Have a good evening and come back next month - we have been meeting the first Thursday of every month