

Deserts: A Desiccated Life

Day One

wanderlust

(w n d r-l st). n. A very strong or irresistible impulse to travel.

Ask the class: What is a road trip? A road trip is any journey taken on roads, regardless of stops en route. Road trips were important throughout antiquity. People go on road trips to see places they've never been and see things and people they've never seen.

Phew! We made it through the wet and wild rainforest! We've gathered data and learned and explored and now it's time do some more! No sweat, right! It's just...the desert!

Students will continue perform as a tribe throughout the duration of this lesson to see how successfully they would survive in the desert.

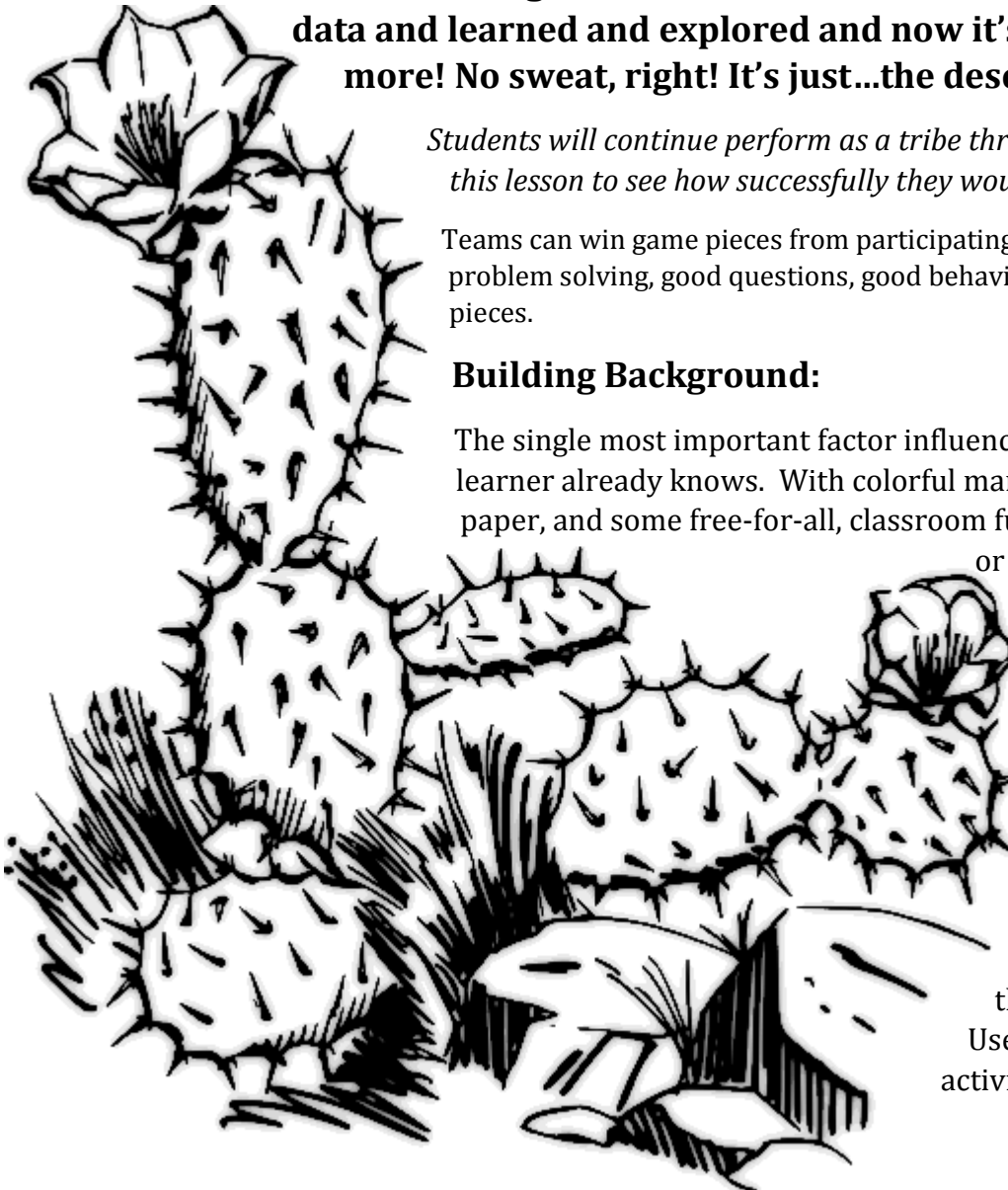
Teams can win game pieces from participating in group work, discussion, problem solving, good questions, good behavior, and etc. to win game pieces.

Building Background:

The single most important factor influencing learning is what the learner already knows. With colorful markers and large poster paper, and some free-for-all, classroom fun, after writing a word or phrase in a circle

(whiteboard, poster paper) have all students think creatively and write or illustrate as many words and concepts connected to it that they can think of around it, designing a Graffiti Wall of things they know about a desert.

Use a timer with this activity to create a sense of



urgency (which adds to the fun).

Encourage students to add to the wall throughout the unit as they gain new knowledge. Keep the web visible throughout upcoming lessons and refer to it as you explore ecosystems in-depth, even asking them to add words and facts to it.



Say, great job of coming up with all of these ideas about deserts. You should also know that deserts are areas of dry land that receive less than ten inches of rainfall each year."

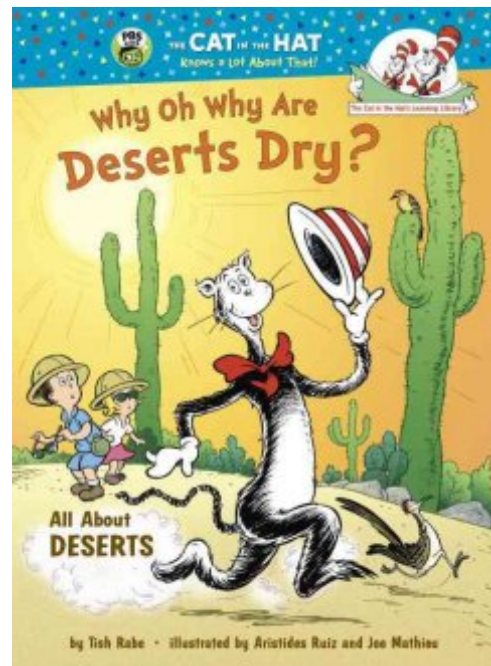
[If necessary, discuss any student misconceptions about what makes a desert. Some students may think that they all deserts are hot, dry, sandy places. Explain that the only thing common about all deserts is that they receive less than ten inches of rain per year, despite the climate and physical landscape of the area.]

Note: Make sure students arrive at the common understanding that:

Deserts are places with little to no rainfall each year.

Deserts are areas of dry land that receive less than ten inches of rainfall per year

Have the students return to their seats and read the class a book such as "Why Oh Why Are Deserts Dry?" (This is very fun and informative book about deserts). When finished reading the book discuss with students how important water is for someone to survive.



Deserts: Salty not Sweet

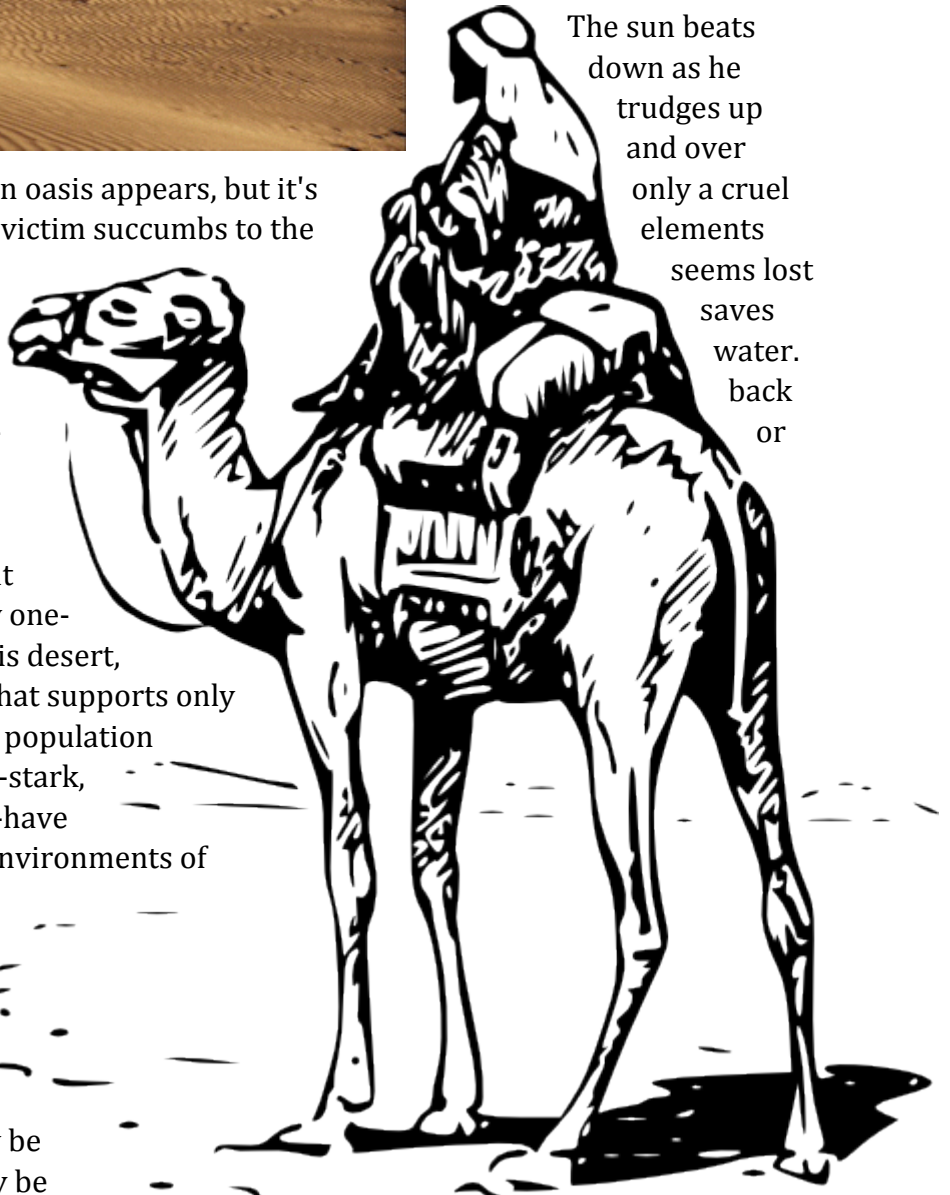


When you say the word "desert," many people immediately picture a vast stretch of sand, a blazing sun, few plants, and fewer animals anywhere in sight. A stranger sets off across the desert in search of rescue.

The sun beats down as he trudges up and over only a cruel elements seems lost saves water. back or

endless sand dunes. Up ahead an oasis appears, but it's mirage. Eventually, the hapless victim succumbs to the sand and collapses to the sand. All until a kindly desert dweller the day with a canteen of The stranger is thrown on the of a camel and taken to safety -- sold into slavery, depending on the movie.

In reality, though, few deserts fit this description. Approximately one-fifth of the Earth's land surface is desert, arid land with meager rainfall that supports only sparse vegetation and a limited population of people and animals. Deserts--stark, sometimes mysterious worlds--have been portrayed as fascinating environments of adventure and exploration from narratives such as that of Lawrence of Arabia to movies such as "Dune" or the adventures of TinTin. These arid regions are called deserts because they are dry. They may be hot, they may be cold. They may be



regions of sand or vast areas of rocks and gravel peppered with occasional plants. But deserts are always dry.

Deserts cover more than one fifth of the Earth's land, and they are found on every continent. A place that receives less than 10 inches (25 centimeters) of rain per year is considered a desert. Deserts are part of a wider classification of regions called "drylands." These areas exist under a moisture deficit, which means they can frequently lose more moisture through evaporation than they receive from annual precipitation.

And despite the common conceptions of deserts as dry and hot, there are cold deserts as well. The largest hot desert in the world, northern Africa's Sahara, reaches temperatures of up to 122 degrees Fahrenheit (50 degrees Celsius) during the day. But some deserts are always cold, like the Gobi desert in Asia and the desert on the continent of Antarctica. Others are mountainous. Only about 10 percent of deserts are covered by sand dunes. The driest deserts get less than half an inch (one centimeter) of precipitation each year, and that is from condensed fog not rain.

Desert areas are rarely devoid of life. Far from being barren wastelands, deserts are biologically rich habitats with a vast array of animals and plants that have adapted to the harsh conditions there. Some deserts are among the planet's last remaining areas of total wilderness. They abound with wonderfully adapted plants and animals that have evolved various mechanisms for tolerating or avoiding the extremes of aridity and temperature that might be encountered in their environment. Yet more than one billion people, one-sixth of the Earth's population, actually live in desert regions and they take tips from the desert animals and plants that live there.

Watch: Living without water: Atacama fog catching nets DURATION: 05:00

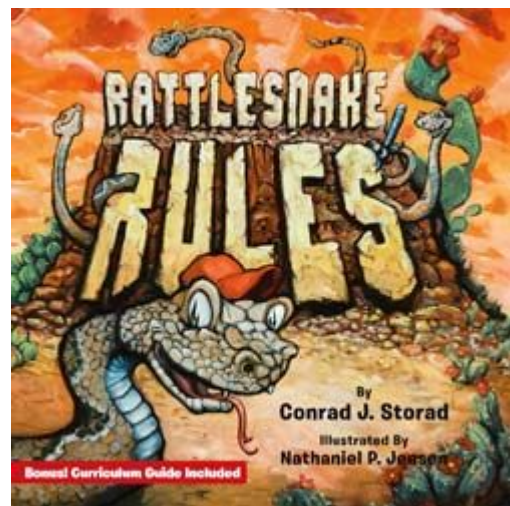
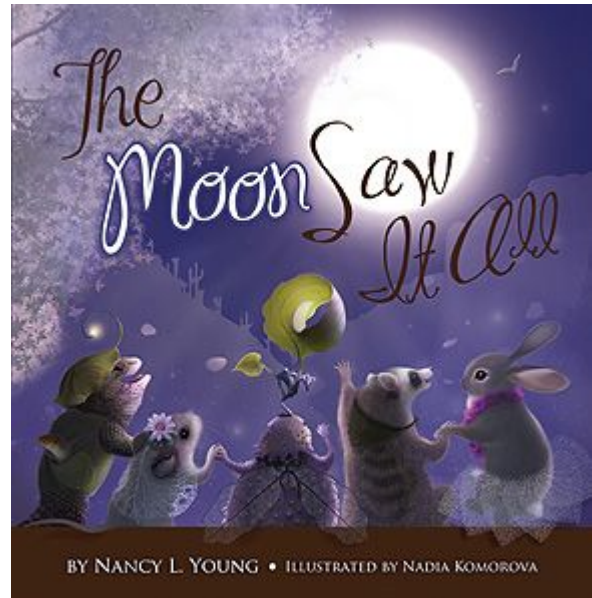
<http://www.bbc.co.uk/learningzone/clips/living-without-water-atacama-fog-catching-nets/11949.html>

The Atacama desert is on the coast of the Pacific Ocean. Cold sea currents cool the hot desert air and produce huge blankets of fog in the atmosphere and the on shore wind from the sea sweeps the fog inland. Cactus plants thrive by capturing the water in the fog. As the fog hits the cacti, it condenses turning from water vapour into liquid. Animals drink the water droplets, which is a vital source of water for them. Humans have found a way to copy nature and capture this water too. By positioning huge nets on the top of a hill. The nets trap the fog, creating droplets of water, just like the cacti obtaining water.

Desert animals have also adapted ways to help them keep cool and use less water. Camels, for example, can go for days without food and water (but they do like to drink! A thirsty camel can drink as many as 30 gallons (135 liters) of water in about 13 minutes). Many desert animals are nocturnal, coming out only when the brutal sun has descended to hunt. Some animals, like the desert tortoise in the southwestern United States, spend much of their time underground. Most desert birds are nomadic, crisscrossing the skies in search of food. Because of their very special adaptations, desert animals are extremely vulnerable to introduced predators and changes to their habitat.

Read students a desert animal book such as *The Moon Saw it All* by Nancy L. Young and compare and contrast what it teaches about the desert and the animals who live there with another, such as *Deep in the Desert*. Compare and contrast different desert animals by reading several books about desert animals such as *Life in the Slow Lane*; *A Desert Tortoise Tale*, *Don't Call Me Pig! (A Javelina Story)*; *Desert Night Shift (A Pack Rat Story)*; *Lizards for Lunch (A Roadrunner's Story)*; and/or *Don't Ever Cross That Road (An Armadillo Story)*.

Plants in this habitat are well adapted to conserving water and often have to survive extremely hot days and cold nights when the temperature plummets. So, deserts may appear to have very little life in them, but a closer inspection can reveal high biodiversity. Desert plants may have to go without fresh water for years at a time. Some plants have adapted to the arid climate by growing long roots that tap water from deep underground. Other plants, such as cacti, have special means of storing and conserving water. Many desert plants can live to be hundreds of years old.



a

Sweet Desert Dessert!



Have students create their own cactus cupcakes or sugar cookies. Follow the tutorial found at this link to learn how. <http://alanajonesmann.com/2013/04/diy-house-plant-cupcakes/#more-3106>

Day One- K-8 Standards Alignment

K

- RI.K.3. With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text or presentation (audio, visual, multimedia).
- RI.K.10. Actively engage in group reading activities with purpose and understanding.

Students will listen to the books presented and explain how the books and the animals in the books are similar and different. They will look into specific ways animals have adapted to desert environments.

1

- SL.K.2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

- RI.1.6. Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.

Students will listen to the books presented and explain how the books and the animals in the books are similar and different. They will look into specific ways animals have adapted to desert environments. They will be asked to think of questions that they have about specific animals survival in the desert. They will be encouraged to asked questions and to participate in the class discussion. They will answer questions as to what information the pictures of the book show that are not specifically addressed in the text.

2

- RI.2.6. Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
- RL.2.7. Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot

Students will listen to the books presented and will be asked to identify the main purpose of what the author is explaining and describing through the books. They will answer questions about how the illustrations and the words help them develop an understanding of the characters, setting and the plot of the book. .

3

- RL.3.3. Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.
- RL.3.7. Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words.

Students will describe the character in the books. They will explain how the characters actions contribute to the sequence of the events. They will also share how the illustrations help enhance the story.

4th

- W.4.8. Recall relevant information from experiences or gather relevant information from print and digital sources.
- RL.4.2. Determine a theme of a story, drama, or poem from details in the text; summarize the text.

Students will be divided into the groups. They will read the books and then in their own words share to the other groups what their books are about. They will summarize the text they have read and determine the theme of the story and share relevant information they gathered from the book. As a class they will then determine if there is key information that is similar between the books they read.

5th

- RI.5.9. Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.
- RI.5.9. Integrate information from two texts or presentations (e.g., visual, oral, multimedia) on the same topic in order to write or speak about the subject knowledgeably.

Students will be divided into the groups. They will read the books and then in their own words share to the other groups what their books are about. They will summarize the text they have read and determine the theme of the story and share relevant information they gathered from the book. As a class they will then determine if there is key information that is similar between the books they read.

6th

- RI.6.3. Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).
- RI.6.6. Determine an author's purpose in a text and explain how it is conveyed in the print or digital text.

Students will be divided into the groups. They will read the books and specifically analyze the message of the book and what they believe the authors purpose was in writing the text. They will analyze how that purpose is conveyed throughout the text. They will share their analysis to the class.

7th

- RI.7.6.a) Determine an author's point of view or purpose in a text
- b) analyze the impact of a specific word choice on meaning and tone.

Students will be divided into the groups. They will read the books and specifically analyze the authors point of view or purpose in the text. By looking at specific word

choice or meaning and tone they will analyze how that purpose is conveyed throughout the text. They will share their analysis to the class. They will share examples of how changing words in the stories that affect the tone or point of view can change the whole message of the story.

8th

- RI.8.6. Determine an author's purpose in a text.
- RI.9-10.3. Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.

Students will be divided into the groups. They will read the books and specifically analyze the authors point of view or purpose in the text. Students will analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them. They will share their ideas with the group. They will determine that even in children's books that books have messages and themes.

Day Two

I can't see you!

Ask students what they know about camouflage? Have them brainstorm what colors are used in the camouflage they have seen. Have them reflect why those particular colors are important.

Camouflage is the art of not being seen, practiced by predators, prey and plants. Color might help an organism blend in with their environment - even when - even when the organism itself cannot see in color. Body shapes can make them appear to be some other object common in the same surroundings.

Patterns might sometimes make an animal more noticeable, but they can also help disguise outline. The tiger's stripes and the giraffe's patches make them almost impossible to detect in dappled light. Camouflage occurs also when they blend in with their environment by resembling something else, like a stick insect looking like a twig. Camouflage is not just brown and green. It can be all different colors.

When animals are hard to see, it increases their chance of survival in an already harsh environment. Camouflage patterns are different for each animal and they are purely custom made. Furthermore, camouflage patterns are different for the particular surroundings that an animal gets used to.







Vanishing Act: Camouflaged Collage

Materials:

- Glue
- Paper
- Scissors
- Images of animals
- Regular and colored Sand (option)
- Collage materials and scraps

Students will design and make collages using different materials of an animal camouflaged in its environment with labels.

What to wear in the desert?

Most desert illnesses are caused by excessive exposure to sun and heat. They can be avoided by keeping head and body covered and remaining in shade until sundown. Constipation and pain in passing urine are common and salt-deficiency can lead to cramps.



Continued heavy sweating on the body coupled with rubbing by clothing can produce blockages in the sweat glands and an uncomfortable skin irritation known as prickly heat.

Heat cramps, leading to heat exhaustion, heat stroke and serious sunburn are all dangers. A gradual increase in activity and daily exposure to the sun will build up a defense- provided that plenty of drinking water is available.

Various microorganisms attack the moist areas of the body- the crevices of the armpits, groin and between the toes. Prevention and treatments are to keep these areas clean and dry.

Clothing for desert survival

Do not strip off your clothes. Apart from the risk of severe sunburn, an uncovered body will lose sweat through evaporation requiring even more to cool it- but keep the covering as loose as possible so that there is a layer of insulating air. Sweating will then cool you more efficiently.

Clothing- Clothing helps reduce fluid loss and gives protection from sunburn- as well as warmth at night and a barrier against insect bites and thorns. In the desert it should be light and loose fitting, with air space between the garments and the body to provide insulation. Copy the flowing, layered garments of the Arab world.

Trousers give more protection from insects than shorts (and guard against serious burns on the legs if forced into daytime exposure). Cover the head and feet.

Headgear

Any hat with a piece of cloth attached to the back will give some protection to the head and back of the neck but it is better to copy the headgear of desert peoples. You need a piece of material about 120cm (4ft) square, a smaller piece, such as a handkerchief, and a piece of cord or cloth (a tie is ideal) to keep them in position.

Make the handkerchief into a wad on top of the head. Fold the large cloth diagonally, place it over the handkerchief, the long edge forward. Tie cord or cloth around the head to secure them. Allowed to fall freely this will protect from the sun, trap pockets of air, take advantage of breezes and protect from sandstorms. At night wrap it around the face for warmth.

Visit a website that sells traditional Desert wear here.

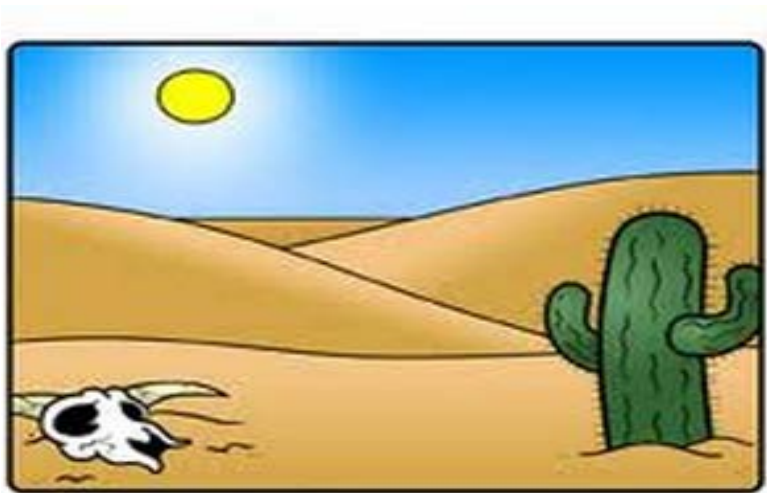
<http://desertdress.com/MensIndex.html>

Going on a trip to Egypt- Don't forget the essentials- Learn More here <http://all-about-egypt.com/egypt-sahara-desert-what-to-bring-on-your-trip/>

Camping in Egypt <http://all-about-egypt.com/egypt-sahara-desert-camping/>

Dressing for the Desert

What colors should we wear to stay hidden in the desert? Have students draw pictures of different outfits that would be appropriate during the day or night in the desert. Then compile the pictures into a book to make a clothing catalog for desert travelers. Have students write descriptions for the clothing and why they think it would be important.



Day Two Standards Alignment K-8

K

7.T/E.2 Invent designs for simple products.

- 7.9.1 Observe, identify, and compare the properties of various objects such as color, shape, and size.

Students will design their own camouflage artwork. They will also design drawings of appropriate desert clothing. Students will also observe photos of camouflaged animals. They will observe, identify and compare the animals colors, shapes and sizes.

1

- SL.1.6. Produce complete sentences when appropriate to task and situation.
- 7.T/E.2 Invent designs for simple products.

Students will design their own artwork showing objects or animals that are camouflaged. They will also develop their own drawings of desert clothing and will use complete sentences to describe their artwork for either project.

2

- 7.T/E.1b Explain how simple tools are used to extend the senses, make life easier, and solve everyday problems.
- 7.T/E.2b Invent designs for simple products.

Students will observe how both in nature and all around us simple tools are used to help solve everyday problems. They will observe how camouflaging can help animals and also people. They will invent their own clothing and or art project to solve an everyday problem or an animal or desert dweller.

3

- 7.T/E.1a Describe how tools, technology, and inventions help to answer questions and solve problems.
- W.3.1. Write opinion pieces on topics or texts, supporting a point of view with reasons.

Students will learn how important it is to have the right clothing in the desert. They will learn of the problems that can happen if desert dwellers are not dressed properly. They

will discuss what tools and technology is currently available to assist those that are in the desert. They will create their own artwork and clearly write to explain why their drawings or artwork helps meet a design that would be helpful to solve a problem for an animal or desert dweller.

4

- Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- SPI 7.5.1 Determine how a physical or behavioral adaptation can enhance the chances of survival.

Students will learn how important it is to have the right clothing in the desert. They will learn of the problems that can happen if desert dwellers are not dressed properly. They will discuss what tools and technology is currently available to assist those that are in the desert. They will create their own artwork and clearly write to explain why their drawings or artwork helps meet a design that would be helpful to solve a problem for an animal or desert dweller. They will discuss the physical and behavior adaptations such as camouflaging or an animals ability to store water that help them better survive in the desert and other places in the world.

5

- 7.T/E.5a Apply a creative design strategy to solve a particular problem generated by societal needs and wants.
- SPI 7.5.1 Identify physical and behavioral adaptations that enable animals such as, amphibians, reptiles, birds, fish, and mammals to survive in a particular environment.

Students will learn how important it is to have the right clothing in the desert. They will learn of the problems that can happen if desert dwellers are not dressed properly. They will discuss what tools and technology is currently available to assist those that are in the desert. They will create their own artwork and clearly write to explain why their drawings or artwork helps meet a design that would be helpful to solve a problem for an animal or desert dweller. They will discuss the physical and behavior adaptations that help animals better survive in the desert and other places in the world.

6

- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- 7.T/E.1a Explore how technology responds to social, political, and economic needs.

Students will learn how important it is to have the right clothing in the desert. They will learn of the problems that can happen if desert dwellers are not dressed properly. They will discuss what tools and technology is currently available to assist those that are in the desert. They will conduct a research project to look online at technology is available for those traveling to desert areas. They will explore how technology changes based on social, political and economic needs.

7

- Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- Use a comma to separate coordinate adjectives

Students will clearly describe their artwork designs in relation to their animal adaptations and also their choice of desert clothing. They will practice the proper use of comma and standard English capitalization, punctuation, and spelling when writing.

8

- SPI 7.5.2 Analyze structural, behavioral, and physiological adaptations to predict which populations are likely to survive in a particular environment
- Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

Students will study what structural, behavioral, and physiological adaptations desert populations need to make in order to survive. Students will clearly describe their artwork designs in relation to their animal adaptations and also their choice of desert clothing. They will practice the proper of standard English capitalization, punctuation, and spelling when writing.

Day Three

Watch the desert bloom in the following videos:

<http://www.bbc.co.uk/programmes/p0037q88> Death Valley Bloom

Every five to eight years it rains in the Atacama Desert in Chile, the driest desert on earth. After the rain the desert explodes with life! Flowers start to sprout everywhere, covering the desert in a carpet of colors. Two months later the surprising show comes to an end and the flowers dry and spread their seeds. The seeds may have to wait for many years before the next rain falls. Let's 'travel there' just in time to see the extraordinary show of the Atacama Desert blooming.



Some of the world's semi-arid regions are turning into desert at an alarming rate. This process, known as "desertification," is not caused by drought, but usually arises from the demands of human populations that settle on the semi-arid lands to grow crops and graze animals. The pounding of the soil by the hooves of livestock may degrade the soil and encourage erosion by wind and water.

Global warming also threatens to change the ecology of desert. Higher temperatures may produce an increasing number of wildfires that alter desert landscapes by eliminating slow-growing trees and shrubs and replacing them with fast-growing grasses.

Changing Math

Like the desert barren of plants this game will help students make connections between sums and how numbers can quickly change.

Bouncing Sums

Cover a beach ball with numbers (use a permanent marker or sticky labels). Toss the ball to one student and have her call out the number that her right thumb touches. She tosses it to the next student, who does the same and then adds his number to the first. Continue for five minutes and record the sum. Each time you play the game, add the sum to a graph.



This game can also be done by teams to see who can get the highest number in a certain amount of time. They must show their math work to back up their sums.

Challenge: Use fractions, decimals, or a mix of negative and positive integers.

Getting them Moving

Between games of Bouncing Sums get kids moving with any of the following beach ball games.

- If you have a large group of kids to entertain, divide them into teams. Have each team stand in a front to back line. When you say “go,” have the first person pass the ball over their head to the person behind them. The second person take the ball from the first and passes it between their legs to the person behind them. The first team to get the ball from the front of the line to the back wins. You can also have the teams return the ball to the front of the line following the same method for added challenge.
- Good old fashioned dodge ball works great with a beach ball because injuries are few and far between.
- Get two or more kids to grab the ends of a beach towel and place the ball on the towel. Have them work together to throw the ball up in the air and catch it in the towel.
- Draw two lines in the sand as far apart as you have space for. Have two kids walk one ball from one line to the next with both using two hands, then one hand, then no hands, then only back, then only knees...you get the idea. The options are endless and this is a great teamwork exercise for kids who are sick of each other.
- Write an action word on each segment of the ball – jump, spin, chicken dance, etc. Have kids throw the ball back and forth. Where ever their hands land when they catch the ball is the action they have to do. The funnier the actions the better!

Standards Alignment for Day Three K-8

K

- K.OA.2. Solve addition and subtraction word problems, and add and subtract within 10
- K.OA.5. Fluently add and subtract within 5.

Students will practice these math skills through the Bouncing Sums math problem review game.

1st

- 1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.
- 1.OA.5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

Students will practice these math skills through the Bouncing Sums math problem review game

2nd

- 2.OA.1. Use addition and subtraction within 100 to solve one- and two-step problems
- 2.OA.2. Fluently add and subtract within 20 using mental strategies.

Students will practice these math skills through the Bouncing Sums math problem review game

3rd

- 3.OA.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$)
- 3.OA.7.b) Fluently multiply and divide within 100, using strategies such as properties of operations.

Students will practice these math skills through the Bouncing Sums math problem review game

4th

- 4.NBT.4. Fluently add and subtract multi-digit whole numbers
- 4.NBT.5.a Multiply a whole number of up to four digits by a one-digit whole number

Students will practice these math skills through the Bouncing Sums math problem review game

5th

- 5.NBT.5. b Fluently multiply multi-digit whole numbers
- 5.NBT.5. a Perform operations (addition, subtraction, multiplication, division) with multi-digit whole numbers

Students will practice these math skills through the Bouncing Sums math problem review game

6th

- 6.NS.2. Fluently divide multi-digit numbers
- 6.NS.3. Fluently add, subtract, multiply, and divide multi-digit numbers using the standard algorithm for each operation

Students will practice these math skills through the Bouncing Sums math problem review game

7th

- 7.NS1.1 Apply and extend previous understandings of operations, ex. with fractions, to add, subtract, multiply, and divide rational numbers.
- 7.NS.3. Solve real-world and mathematical problems involving the four operations with rational numbers.

Students will practice these math skills through the Bouncing Sums math problem review game

8th

- A-APR.1. Add, subtract, and multiply polynomials.
- A-APR.7. b Solve real-world and mathematical problems involving the four operations with rational numbers and/or rational expressions.

Students will practice these math skills through the Bouncing Sums math problem review game

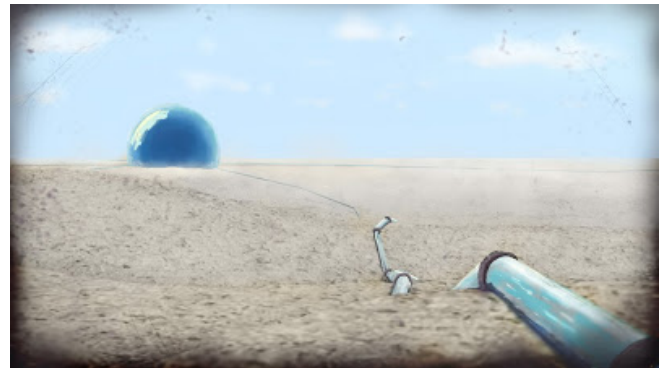
Day Four

The Incident at Tower 37

Tower 37 is a ten-minute animated short film that was produced collaboratively at Hampshire College and has spent the past several years in film festivals worldwide.



Have students watch the award winning film (if the following links don't work please google it, <http://www.bitfilms.com/tower37.html>) In the middle of a dry, desolate landscape stands Tower 37: a shimmering water processing station, siphoning every last drop of water from a once pristine lake. Day in and day out the station's lone steward monitors the tower's activities, never realizing that Tower 37 is slowly destroying an entire ecosystem. But when two unexpected guests arrive, the tower's operator learns the high cost of his ignorance.



This video sends an incredibly powerful message about the environment. They released it online on World Water Day [March 22nd], to bring even greater attention to humanity's role in creating and perpetuating this planet's critical water issues. The film is allegorical, but the challenges we face are real.

Set the stage by telling students that they will be venturing into the world of investigative reporters, there have been rumors of issues out at Tower 37 and our science team has been asked to figure out what's going on. When we arrive we find a lake and a security recording.

While watching, pause the video occasionally and get the students to ask what they think will happen next.

Discuss the film with students using questions such as the following:

1. Describe the creatures. Can you compare them with other animated cartoon characters?
2. Why does the director make the choice to portray them like that?
3. Describe them physically.
4. Discuss the director's choice concerning dialogue. Is it effective? Explain.
5. Why is it Tower 37?
6. What role does music play? Why and when does it change?
7. Why do you think the man is shown alone?

8. Does the man change? How? Why?
9. What do you notice most when watching the film?
10. What is the goal of the film?
11. Is the director successful? Why or why not?
12. Why does the man see clouds as he looks up in the sky?
13. What is he thinking as he puts his head down on the raft?

Now that you know where a desert is, can you adapt?

Adapting to the Desert: Show a quicktime video “Desert Biome”

(<http://www.pbslearningmedia.org/resource/tdc02.sci.life.eco.desert/desert-biome/>) (Note: if the link doesn't work for any reason, search for PBS Desert Biome on a search engine, like Google, and it should bring up the most updated link) We will discuss the difference between adaptation and learned behaviors (ex: a polar bear has thick fur to help him live in the cold tundra(adaptation) babies learn to walk talk (learned behavior). We will examine some of the behaviors and physical characteristics that enable organisms to live successfully in the desert environment. There are three basic methods plants and animals use to live in the desert.

1. EXPIRE - When the going gets tough, die... but leave behind tough seeds/eggs
2. EVADE - When the going gets tough leave... go north or south
3. ENDURE - When the going gets tough, take it... but adapt (one type of adaptation is camouflage)

Teacher and students will discuss situations that may cause an organism to become extinct in the desert.

Show selections from the following videos about adaptation.

- <https://www.youtube.com/watch?v=ikDbPX9HJok> Desert elephant survival - Dune - BBC animals Brilliant video of Desert Elephants and other savannah animals that have learnt to exist in one of the harshest natural environments on Earth.
- <http://www.bbc.co.uk/learningzone/clips/how-animals-survive-in-the-desert/52.html>
- <https://www.youtube.com/watch?v=hTfBSIYTG4k> How do animals survive in the desert? - Zoo La La (Ep 32) - Earth Unplugged
- Choose clips from: The Living Planet BBC - The Baking Deserts (David Attenborough) <https://www.youtube.com/watch?v=w7uT7-AfLEI> or <https://www.youtube.com/watch?v=6DyuAQvJrIA&list=PLAFgtjg3kJEcSIG5Nsu5jDM0PUjE09ziN>

Students will work in a group to make a list of animals that have adapted to live in the desert and identify the adaptation and why the adaptation was necessary to live successfully in the extreme environment . They will also make a plan on how we, as a group can use inspiration from that adaptation to help us (as humans) survive our journey through the desert.

Students will appoint a speaker for their group and after they are finished, the speaker will detail the plans for our survival...

Live or die. Do we have the skills to survive?

Desert Survival Team Building Exercise: <http://www.cdcprogram.org/star/3-5%20desert.pdf>

Will we expire, evade, or endure...?

The “Desert Survival” Team Building Exercise is a fun way to bring your group together as they problem solve, work as a team, and learn to trust one another. Divide the group into teams. For the sake of group solidarity and bonding, it’s a good idea to recommend that each team come up with a name for their group. Distribute the Desert Survival Team Building Exercise handout and tell each team that they must follow the directions. Give the class ten minutes to fill out the ranking individually then teams twenty minutes to rank the importance of the items they salvaged from the plane wreck and to come up with a plan for either escaping the desert or finding help. When the time is up, reconvene and invite a member of each group to come forward share their team’s decisions, along with rationalizations for their actions. Because this activity fosters teamwork and trust, there are no “losers.”

After each group reports out, discuss how in healthy relationships we must depend on one another for survival. We must trust others and be willing to share opinions without being afraid. The activity should show students that depending on one another increases their chances of survival, not just in a plane crash, but also in society.

“Desert Survival” Team Building Exercise

It is 1:00 p.m. on a Saturday afternoon at the end of May. You and your teammates have just finished a two-day training in Casablanca, Morocco. You are all on board a chartered, twin-engine plane that is destined for Dakhla, Morocco, a small town on the coast of the North Atlantic Ocean, approximately 1000 miles from Casablanca (have students find it on the map). At the beginning of the flight the Captain came on the overhead speaker and invited you to sit back and relax during the two-hour flight. The first fifty minutes of the flight were fine.

Around this time the pilot comes back on the speaker to let you know that you are currently flying over the Sahara Desert and that weather reports showed a temperature high of 115 degrees. Approximately one hour and ten minutes into the flight, you hear a loud blast and the plane nosedives. Within minutes you realize that the cabin is losing pressure. When you look outside the windows, you notice that the desert below is growing larger as the plane rapidly descends toward the ground. You notice that the only things you can see out of your window are some large boulders and miles and miles of sand.

The pilot comes on once again to let you know that the plane has blown an engine and is therefore, indisputably, going to crash and so all on board should prepare for a turbulent, possibly fatal, crash landing. Within minutes the planes crashes and smoke and flames fill the cabin. All surviving passengers and crewmembers scramble to exit the plane before it explodes. Seven minutes after the crash, the plane explodes in a fiery ball that reduces it to rubble. With the exception of the airplane's captain and one crewmember, you, your teammates, one flight crewmember, and the co-captain have all survived the crash. Now you must decide how to work together to survive the desert climate and terrain, get help, and hopefully make it out of the desert alive. On your way of the plane, in the few minutes before it exploded, you and your teammates were able to salvage the items in the list below. It is May and you and your teammates are dressed in business casual for the hot summer months of Africa. With only the clothes on your back and the items pulled from the wreckage, how will you survive?

Steps:

1. Individually, rank the items below in order of importance, "1" being most important and "18" being least important.
2. Individually, write down your plan for survival in a few sentences.
3. When the teacher announces time is up, choose a recorder for your group and on the handout the teacher provides, use the group information to create a group plan. First decide the order of importance of the items then decide on a group plan for survival.
4. Report out to class, including the following:
 - a. Did discussing the items and plan with the group change anyone's mind?
 - b. Does each group member think the group plan is the best or do some people believe their individual plan is better.

As a class make a graph to determine which items overall the group chose. Do real world math problems to determine the percentages or number of students that chose specific items. Discuss the findings as a class.

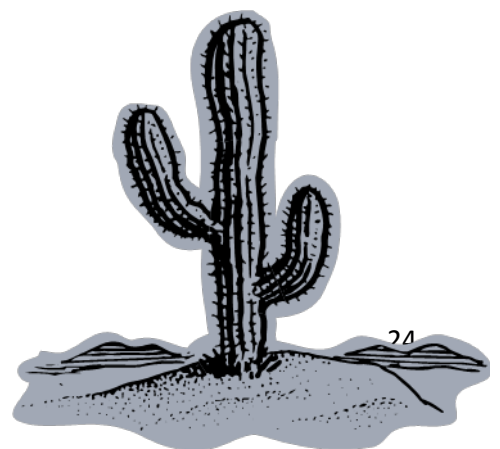
Rank your items!

_____1 Book of matches

_____3 Airplane blankets

_____20 Feet of nylon rope

_____1 Sewing kit



_____2 50 kg Tanks of oxygen
_____20 Cans of soda
_____1 Life raft
_____1 Bottle opener
_____1 Magnetic compass
_____1 Single-blade pocketknife
_____15 Gallons of water
_____3 Signal flares
_____1 First aid kit
_____1 Snakebite kit
_____25 Mini bags of pretzels
_____55 Mini bags of peanuts
_____1 Safety razor blade
_____4 Airplane pillows

Standards Alignment K-8

K

- SL.K.1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
- Continue a conversation through multiple exchanges.

Students will be able to effectively met these standards through participation in the Desert Survival Team Building Exercise

1

- SL.1.1. Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
- Build on others' talk in conversations by responding to the comments of others through multiple exchanges.

Students will be able to effectively met these standards through participation in the Desert Survival Team Building Exercise

2

- SL.2.1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
- Build on others' talk in conversations by linking their comments to the remarks of others

Students will be able to effectively met these standards through participation in the Desert Survival Team Building Exercise

3

- SL.3.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
- Explain their own ideas and understanding in light of the discussion.

Students will be able to effectively met these standards through participation in the Desert Survival Team Building Exercise

4

- SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
- Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.

Students will be able to effectively met these standards through participation in the Desert Survival Team Building Exercise

5

- SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
- Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.

Students will be able to effectively met these standards through participation in the Desert Survival Team Building Exercise

6

- SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
- Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.

Students will be able to effectively met these standards through participation in the Desert Survival Team Building Exercise

7

- SL.7.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
- Acknowledge new information expressed by others and, when warranted, modify their own views.

Students will be able to effectively met these standards through participation in the Desert Survival Team Building Exercise

8

- SL.8.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others’ ideas and expressing their own clearly.
- Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.

Students will be able to effectively met these standards through participation in the Desert Survival Team Building Exercise

Part One Vocabulary Guide

K

- | | | |
|---------------|------------|---------------|
| • Day | • Food | • Respect |
| • Night | • Clothing | • Cooperation |
| • Water | • Shelter | • Thermometer |
| • Sun | • Human | • Temperature |
| • Basic Needs | • Rules | |

1

- | | | |
|---------------|-----------------|---------------|
| • Environment | • Measure | • Video/Media |
| • Heat | • Measurement | • Character |
| • Light | • Texture | • Setting |
| • Living | • Freezing | • location |
| • Non-living | • Precipitation | |

2

- | | | |
|-----------------------|----------------|-------------------|
| • Temperature Pattern | • Energy | • Celsius |
| • Observation | • Habitat | • Foot |
| • Infer | • Similarities | • Inch |
| • Evaporation | • Differences | • Likely/unlikely |
| • Distance | • Compare | • Fahrenheit |
| | • Contrast | |

3

- | | | |
|-------------|-------------|----------|
| • Force | • Volume | • Cause |
| • Tools | • Force | • Wind |
| • Landforms | • Character | • Effect |
| • Geography | • Scarcity | |
| • Pitch | • Setting | |

4

- | | | |
|-------------------------|-----------------------|------------|
| • camouflage | • Physical adaptation | • Compare |
| • Ecosystem | • Exploration | • Contrast |
| • Behavioral adaptation | • Friction | |
| | • Energy | |

5

- Solution
- Surface
- Energy

- Theme
- Main idea
- Implied

- Variable
- Model

6

- Control
- Criteria
- Cause
- Effect
-

- Biotic
- Abiotic
- Atmospheric
Convection

- Prototype
- Biosphere
- Similarity
- Simulation

7

- Property
- Momentum
- Impact
- Topography

- Climax
- Function
- Property
- Respiration

- Speed
- Simple machine

8

- Tension
- Particle motion
- Sequence
- Base
- Function
- Best fit
- Pitch
- Rate
- Variation

