



THE GLOBE PROGRAM

A Worldwide Science and Education Program



GLOBE Program Elementary K-4

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[STEM & Collaboration](#) ▾



GLOBE PROGRAM

Elementary K-4

INTERNATIONAL PROJECT



Elementary GLOBE



Namijenjen je djeci vrtićkoga uzrasta i učenicima nižih razreda (K-4: 5-11)

MODULI:

- Kvaliteta zraka
- Klima
- Oblaci
- Eko sustav
- Godišnja doba
- Tlo
- Voda

Svaki modul ima:

- Slikovnicu sa izmišljenom znanstvenom pričom u kojoj učenici istražuju određeni dio eko sustava koristeći znanstvene metode
- tri istraživačke aktivnosti koje pomažu učenicima da razvijaju svoje istraživačke znanstvene sposobnosti
- pripremu za učitelja i rječnik znanstvenih pojmova



The project is based on collaboration by the Wakelet application:

 [International Wakelet Profile](#)

 [Croatian Wakelet Profile](#)

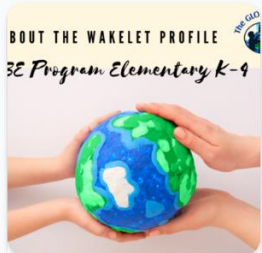
The Project is based on the methodology of the international GLOBE Program:



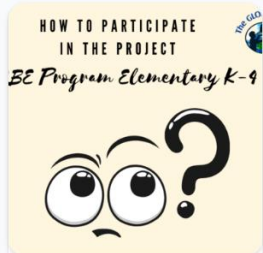
 [The GLOBE Program](#)

 [Elementary GLOBE](#)

About the International Project "GLOBE Program Elementary K-4"



6 items
About The Wakelet Profile "GLOBE..."



7 items
How to Participate in the Project "GLOBE..."



7 items
Collaboration & Partners



11 items
CROATIA "GLOBE Program"...



5 items
MALTA



7 items
THE REPUBLIC OF NORTH MACEDONIA



1 item
THE UNITED STATES



SLOVENIA

Useful Pages-Collaboration

About the International Project "GL...
Elementary GLOBE Schools & Kinde...

GLOBE resources

Useful Pages-Collaboration

Web 2.0 Resources

USEFUL PAGES

1. Collaboration & Education



129 items
Useful Pages- STEM, Collaboration &...

SOCIAL MEDIA

links



9 items
Social Media Links

GLOBE resources

INTRODUCTION to GLOBE



25 items
Introduction to GLOBE

RESOURCES & MEDIA by GLOBE Earth Spheres



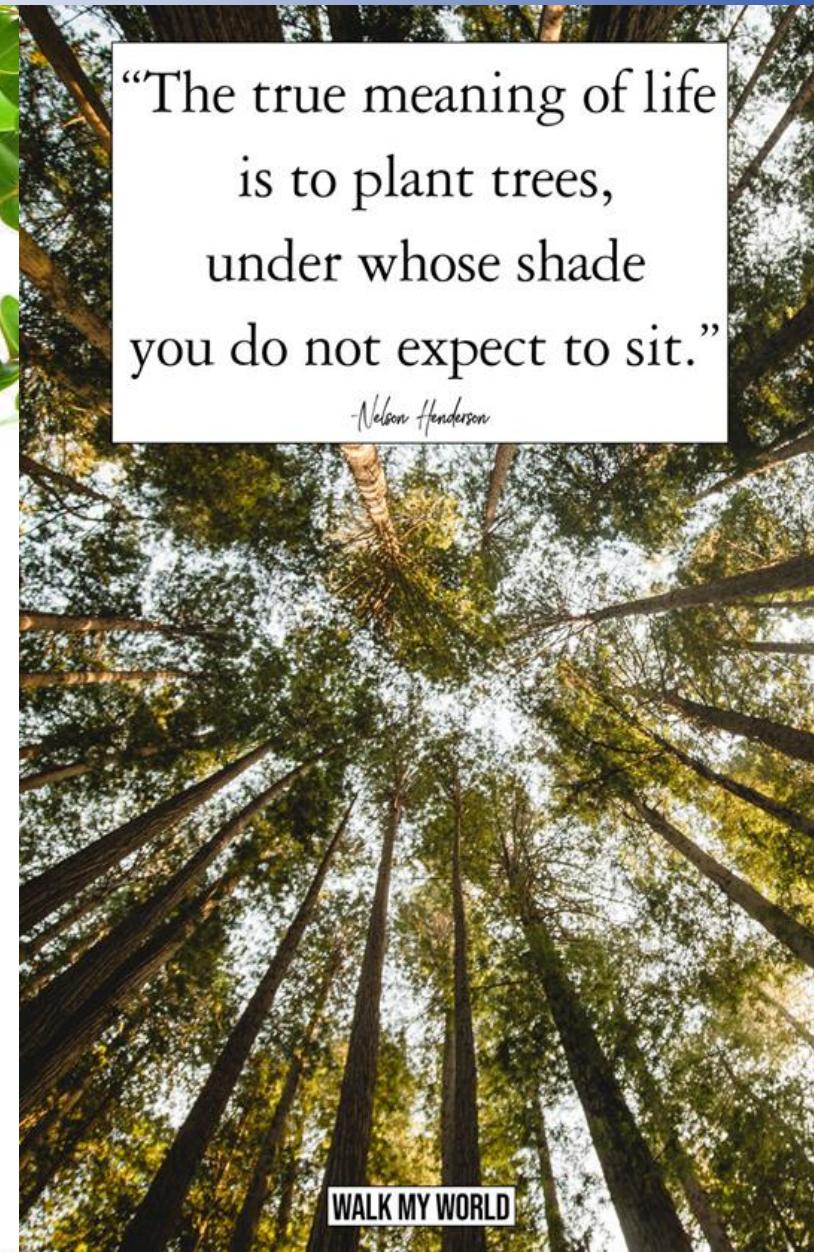
14 items
Resources & Media by GLOBE Earth Spheres



Biometrija i Fenologija

“The true meaning of life
is to plant trees,
under whose shade
you do not expect to sit.”

-Nelson Henderson





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An Apple Tree through the Seasons of the Year NAME _____

Color the pictures of the apple tree. Above each tree, write the season that is shown: **Spring, Summer, Fall, or Winter.**

 The apple tree is in bloom.	 The apple tree is full of beautiful green leaves.
 The apple tree is full of apples.	 The leaves have fallen off the tree.

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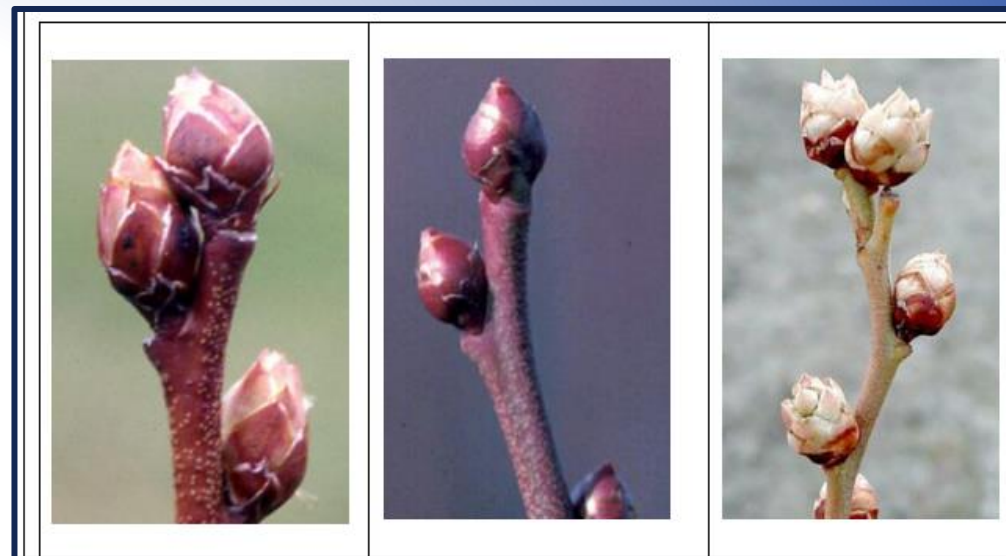


مدرسة جيو ايس ان الخاصة
JSS PRIVATE SCHOOL

Name: _____ Class: _____ Date: _____

Choose the correct season

summer	winter	autumn	spring
			<input type="text"/>
			<input type="text"/>
			<input type="text"/>
			<input type="text"/>



Aktivnosti:

- prepoznavanje sezonskih promjena u prirodi, zapažanje i bilježenje promjena
- istraživanje ciklusa rasta i razvoja biljke
- prepoznavanje početka ciklusa razvoja listova i praćenje rasta listova
- crtanje pupova i listova
- uspoređivanje početka pupanja među različitim biljnim vrstama
- razumijevanje povezanosti razvoja biljaka sa stanjem u okolišu

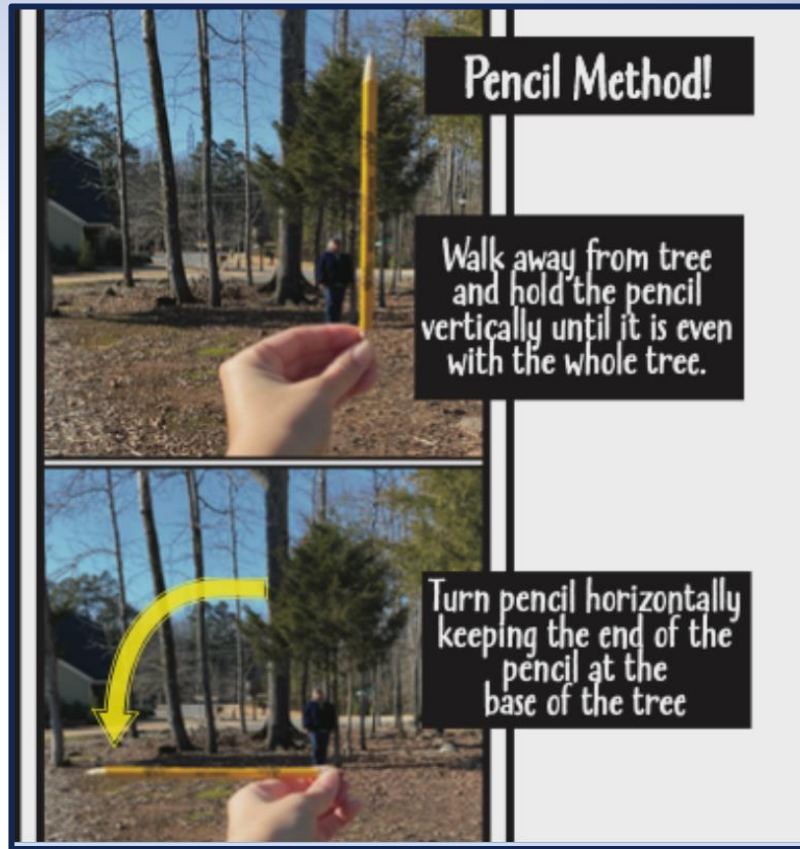




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Aktivnosti:

- mjerenje visine drveća jednostavnim metodama
- prepoznavanje različitih vrsta drveća
- sadnja drveća i praćenje rasta drveta
- razumijevanje povezanosti rasta drveta sa stanjem u okolišu
- zapažanje i bilježenje promjena u okolišu
- razvijanje odgovornog odnosa čovjeka prema sebi i prirodi.



Aktivnosti

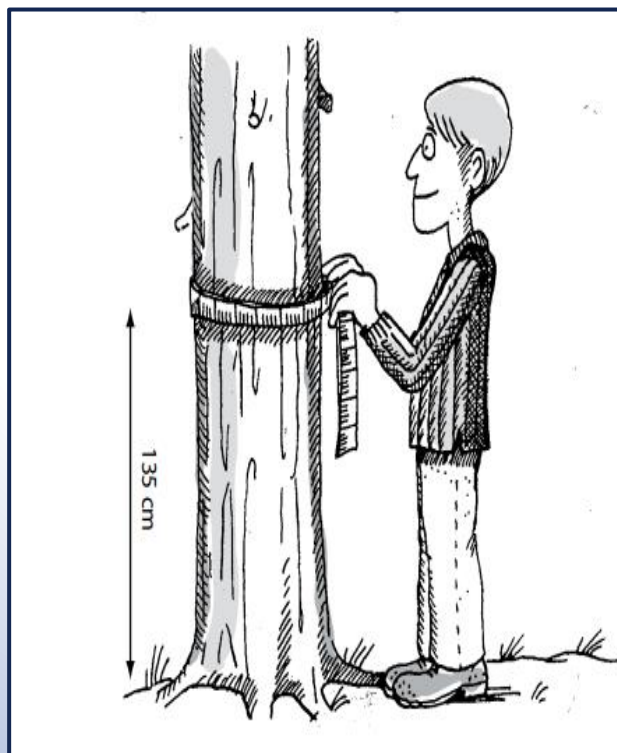
- mjerenje opsega stabala različitim metodama
- prepoznavanje različitih vrsta drveća (listopadne, vazdazelene)
- izračunavanje i određivanje starosti drveta – usporedba starosti
- usporedba opsega različitih stabala
- razumijevanje povezanosti rasta drveta sa stanjem u okolišu

Resources

Range of tree species; cut log/tree stump (optional); tape measure/string; tree identification keys; magnifying glass (optional).



How many rings?



Explore

Use ID sheets, books or apps to identify the tree being measured.

Once learners know the species of tree you are measuring, you can make this work more accurately, as different types of tree grow at different speeds.

5. Using the growth rate table below, learners can check the type of tree you have measured and divide the girth by the number given. For example, a sycamore with a girth of 110cm is about 40 years old ($110 \div 2.75 = 40$).

Species of tree	Growth of girth per year (cm)
Average	2.5
Oak and beech	1.88
Pine and spruce	3.13
Sycamore	2.75

Whether a tree is in woodland or in the open, also makes a difference to growth.

Explore

As a group discuss why this is? Will woodland trees grow faster or slower than trees in the open?

Trees in the open grow faster because there is less competition from other trees, for light, water and nutrients.

6. Learners can build this into their calculations. For example, an average woodland tree increases in girth by approximately 1.25cm per year.

Explore

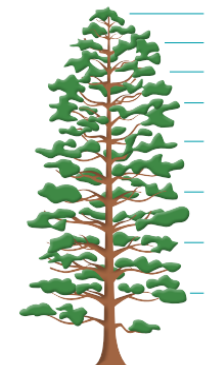
As a group identify whether there are any conifer trees present?

Conifers (pines, spruces, larch, firs) usually grow a whorl of branches each year. If you count the number of whorls of branches up the trunk, you get an approximate age. This is easiest with young trees – up to about 20 years old.

7. Learners can estimate the age of any conifers present using this method. Compare it to the method using girth measurement using the data in the table below. How similar are your results?

Extension

Learners can draw a timeline for your tree in chalk in the playground and research and mark on this significant moments or events in recent history that this tree would have lived through.



Whorls – this tree is 16 years old

Drveće možemo pronaći svuda u okolišu. Iz dječje perspektive, drvo može biti veliko i malo. Drvo se može dodirivati i mirisati, možemo ga doživjeti svim osjetilima. Na taj način svako drvo pruža izvanredni izvor za učenje prirodoslovnih i matematičkih vještina. Promatranje i praćenje stabla omogućuje učenje na otvorenom, u stvarnom životu. Uz aktivnosti procjene, mjerenja i opažanja djeca razvijaju i socijalne vještine (komunikacija i kreativnost)

Foundation Phase and KS2: Measuring tree height

Estimating the height of a tree

Compare the height of a tree by eye, with objects of a similar height to provide a sense of scale.

Skills

Estimation, number processes, fractions, measurement, data & analysis.

Resources

Tree(s); measuring tape; chunky chalk.



ACTIVITY

Explore

How tall is the tree compared to e.g. a person or a nearby building?

This can lead to discussions about closer objects looking bigger while those that are far away seem smaller.

Explore

What do you need to do to make your estimate better?

1. Working in pairs the height of a tree can be estimated by measuring one learner.
2. Once measured, this learner stands beside the selected tree.
3. Their partner imagines how many times the measured learner fits (head to foot) into the height of the tree - from the ground to the top of the tree.
4. The pair then multiply the number of times the learner fits, say 4 times, by the height of the learner, say 1 metre, to estimate the height of the tree.



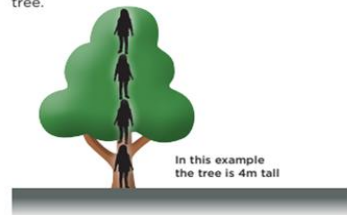
How many times does the person fit into the tree height?

5. As a group discuss how the tree height can be measured this way using the language of fractions.

Extension

In pairs, learners draw the length of the tree in chalk on a hard surface playground, and then draw around the shape of your learner who was measured lying lengthways at the base of the 'trunk' of the chalk tree.

Learners then draw the tree's shape to make it look like the one that was measured. Lastly learners mark in chalk how many times the measured learners body fitted into the tree.



Foundation Phase: Measuring tree girth

Hugging a tree

Use arm lengths or hand spans to measure the circumference of a tree.

Skills

Estimation, measurement, data & analysis.

Resources

Tree(s); enough children to encircle a tree; Extension: paper/pens/cloth/clay.



ACTIVITY

1. Working in a group, ask the learners to choose a tree they like.

Explore

Ask the group - How can we work out how big it is all the way round (the tree's girth)?

2. Help the group decide how many people are needed to measure the tree's girth using outstretched arms, touching one another's fingertips, standing around the tree.
3. Experiment with different measures, like hand spans, around the tree.
4. Discuss and decide how to get consistency in measurements between different trees.

Explore

Ask the learners to describe the shape and girth of the chosen tree to someone else?

Choosing a site with a variety of trees will enable the group to discuss how the girths of different trees vary, and to choose the appropriate form of measurement whether it is arm lengths or hand spans (or something else!).



How many people?

Extension

Learners can make handprints on paper or cloth to show how many hand spans each tree required - hang these from your tree or make a picture washing line outdoors!

Learners can make up a name for the tree from the words used to describe it. Use ID sheets, books or apps to find out the real name of the tree? Try writing the name on a rolled-out piece of clay or mud and stick it on your tree.





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Atmosfera





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Weather Adds Up to Climate Student Activity Sheet 5

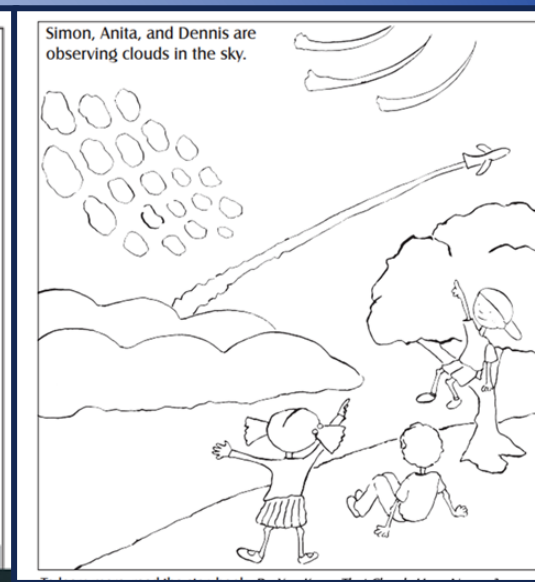
Name(s) _____

This is why I'd bring each item...

Write who you would bring each item to one or both of the places.

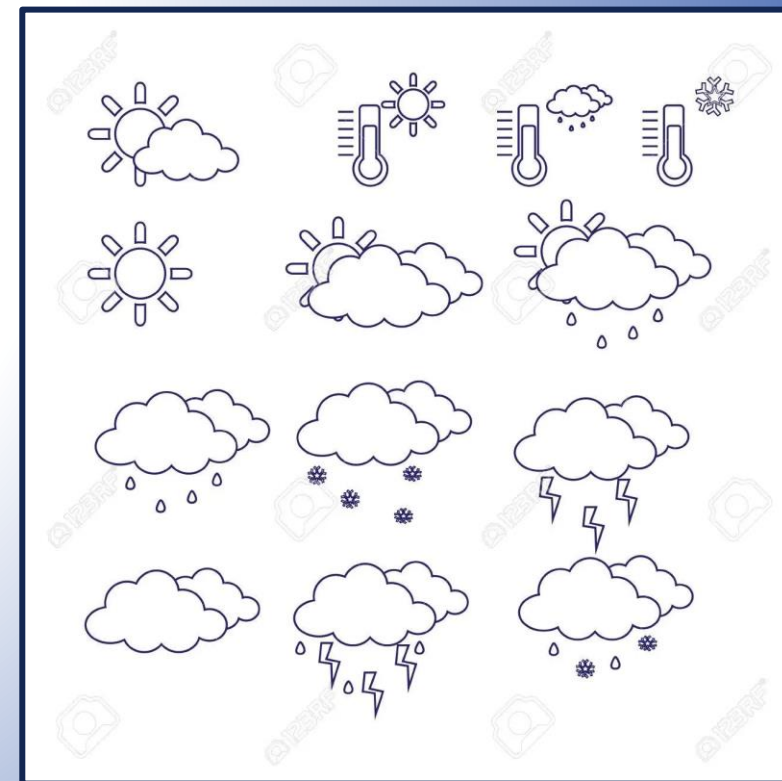
swimsuit	camera
mittens	wood hat
sun hat	journal
sunscreen	swimsuit
coat	life jacket
water bottle	sunglasses
sandals	scarf

A drawing of my sky:



Aktivnosti

- opažanje vremenskih prilika
- opažanje i prepoznavanje boje neba
- upoznavanje s termometrom i načinom mjerenja temperature zraka
- crtanje neba i oblaka
- uspoređivanje vremenskih prilika i izgleda neba tijekom godišnjih doba

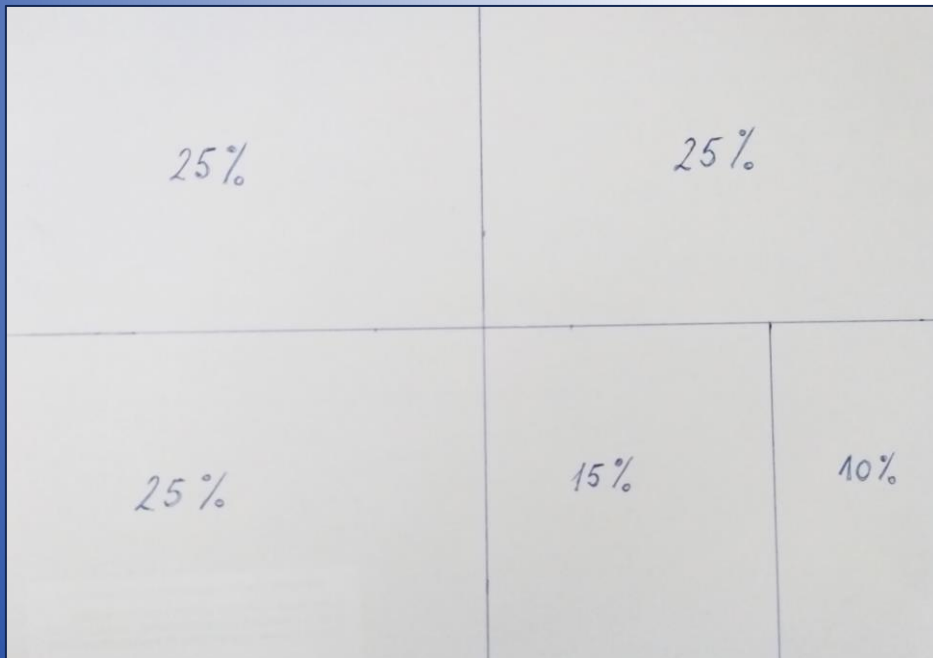


NAOBLAKA



Aktivnosti

- procjena količine naoblake na nebu
- izrada modela za vježbanje određivanja količine naoblake



Aktivnosti

- mjerenje temperature zraka termometrom
- mjerenje količine oborine kišomjerom
- opažanje boje neba i vidljivosti, vremenskih prilika
- pisanje dnevnog izvještaja o nebu



Okreni se od Sunca i potraži najtamniju plavu boju na nebu!

Ime _____
Datum _____ Vrijeme _____
Lokacija _____

<p>Ima li oblaka?</p> <input type="checkbox"/> Nema oblaka <input type="checkbox"/> Ima malo <input type="checkbox"/> Ima mnogo <input type="checkbox"/> Magla je	<p>Ima li oborina?</p> <input type="checkbox"/> Nema <input type="checkbox"/> Kiša <input type="checkbox"/> Susnježica <input type="checkbox"/> Snijeg	<p>Ima li vjetra?</p> <input type="checkbox"/> Povjetarac <input type="checkbox"/> Snažan vjetar <input type="checkbox"/> Nema
--	---	--

Napomena: Ako je mnogo oblaka na nebu, nije dobar dan za promatranje boje neba! Pokušaj sutrad!

Temperatura zraka: _____ °C

Boja neba: _____

Kiša (da/ ne): _____

Tlo (suho/mokro): _____

Drveće ima lišća (da/ne): _____

Sky Color: What's the deepest shade of blue?

Deep Blue Blue Light Blue Pale Blue Milky

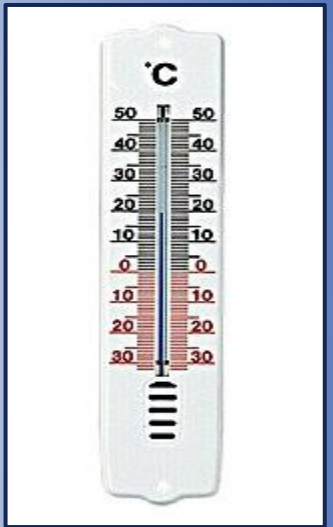
You Can Help NASA Study Aerosols

Aerosols are very small particles floating in the sky. Although they occur in nature (like pollen), aerosols can also be human-made (like car exhaust). A milky or hazy sky is a sign that there are many aerosols in the sky.

Submit your data through:
THE GLOBE PROGRAM
 or through the GLOBE Observer app, available for Apple or Android devices.

Sky Visibility: What does a distant object along the horizon look like?

Unusually Clear Clear Somewhat Hazy Very Hazy Extremely Hazy



sunny	partly cloudy	cloudy	foggy	windy	raining	snowing		
Celsius temperature labels				very cold less than 0° C	cold 0 to 10° C	mild 11 to 20° C	warm 21 to 30° C	hot more than 30° C

Aktivnosti

- mjerenje i opažanje vremenskih prilika tijekom duljeg razdoblja
- pisanje dnevnog izvještaja
- uspoređivanje promjena temperatura tijekom izmjene godišnjih doba

Weather Adds Up to Climate Student Activity Sheet 2

Month _____ Name _____

number of days

31					
30					
29					
28					
27					
26					
25					
24					
23					
22					
21					
20					
19					
18					
17					
16					
15					
14					
13					
12					
11					
10					
9					
8					
7					
6					
5					
4					
3					
2					
1					

Temperature Conversion Chart

30°C 86°F

20°C 68°F

10°C 50°F

0°C 32°F

very cold less than 0°C	cold 0 to 10°C	mild 10 to 20°C	warm 20 to 30°C	hot more than 30°C
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Weather Adds Up to Climate Student Activity Sheet 1

Month _____ Name _____

number of days

31						
30						
29						
28						
27						
26						
25						
24						
23						
22						
21						
20						
19						
18						
17						
16						
15						
14						
13						
12						
11						
10						
9						
8						
7						
6						
5						
4						
3						
2						
1						

sunny	partly cloudy	cloudy	foggy	windy	raining	snowing
-------	---------------	--------	-------	-------	---------	---------

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Sky Observers Daytime Sky Report

Face away from the Sun and look for the deepest color of blue.

Name _____ Date _____

Time ____: ____ AM or PM (circle one)

Location _____

Are there clouds?
 no clouds
 some clouds
 lots of clouds
 fog

Is there precipitation?
 none
 rain
 sleet
 snow

Is there wind?
 gentle wind
 strong wind
 no wind

Note: If there are lots of clouds, then this is not a good day to make a sky color report. Try again tomorrow!

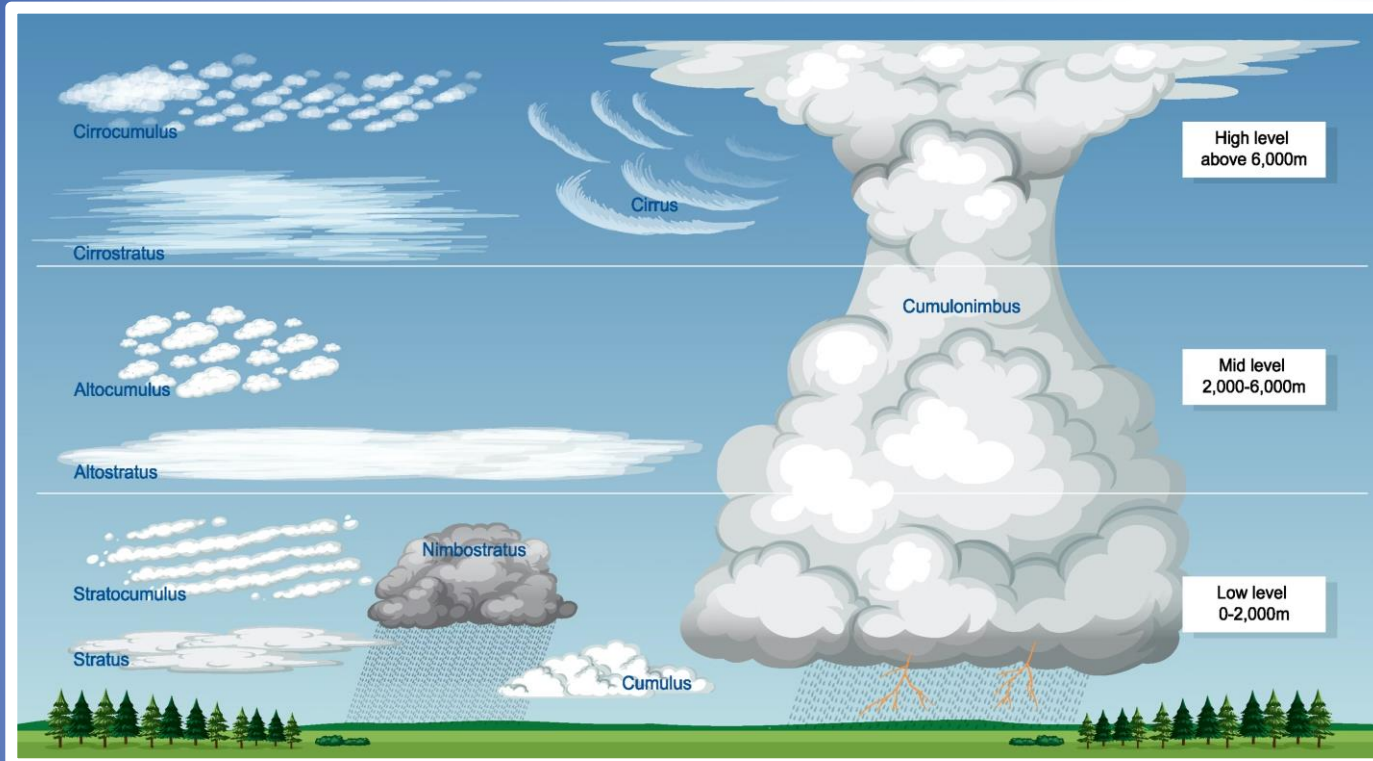
A drawing of my sky:

The deepest color I see:

deep blue
 blue
 light blue
 pale blue
 milky
 other _____

Visibility:

very clear
 clear
 somewhat hazy
 very hazy



Aktivnosti

- prepoznavanje vrsta oblaka
- crtanje oblaka
- izrada modela oblaka
- povezivanje vrsta oblaka s vremenskim prilikama

Name: _____

Date: _____

Name the Clouds



Puffy clouds that look like pieces of floating cotton



White, delicate, and feathery clouds found at high altitudes



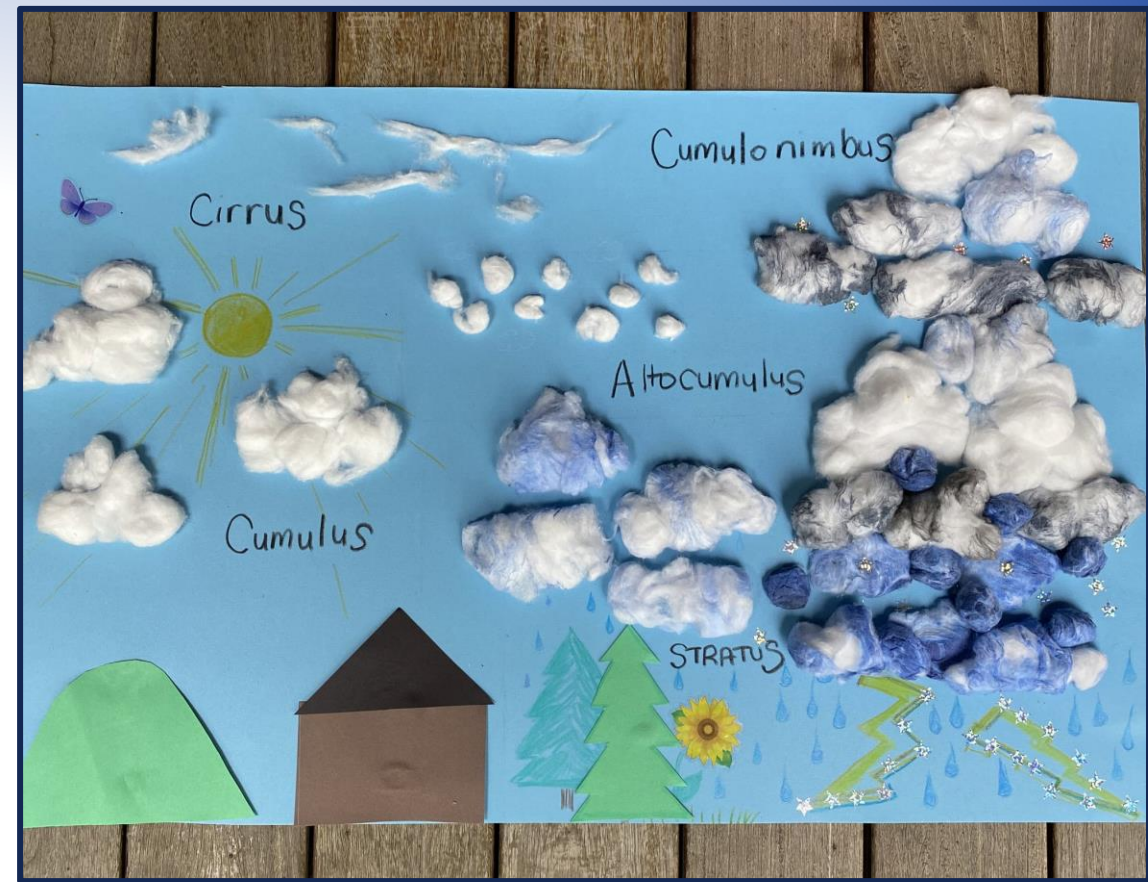
Low, puffy, whitish, or grayish clouds that occur in patches



Low-level clouds that are blanket-like with a uniform grey or white color



Low-level thunderstorm clouds

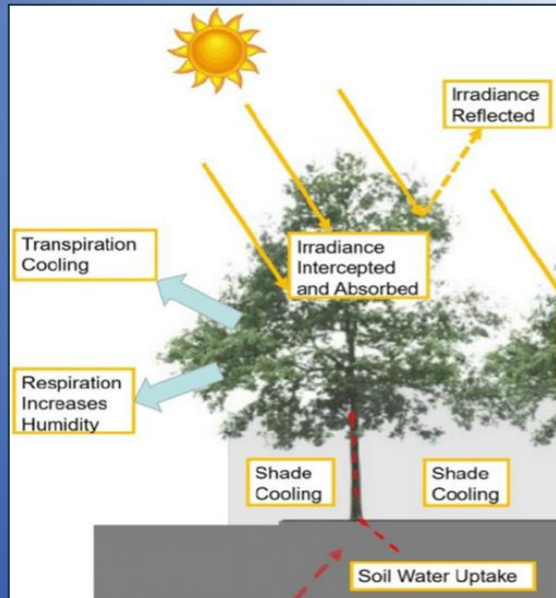


Izrada modela, plakata
i pokusa



Aktivnosti

- mjerenje površinske temperature tla
- razumijevanje da je Sunce glavni izvor energije za Zemlju
- uspoređivanje površinskih temperatura na različitim površinama
- razumijevanje da čovjek svojim djelovanjem može utjecati na okoliš
- opisati kako nas drvo štiti od sunčevog zračenja



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Elementary GLOBE All About Earth: Our World on Stage Earth System in a Bottle Student Activity Sheet

Name _____

Date: _____

Draw what you see in this terrarium.

This terrarium included:

- Light
 Soil
 Water
 Seeds/plants
 Air



Write about what you see in this terrarium.

Elementary GLOBE All About Earth: Our World on Stage Earth System in a Bottle Recipe Card

Earth System in a Bottle Recipe

Each group will make two terrariums. All groups will make a terrarium that has all of the parts of the Earth's systems. Then each group will make a second terrarium that is missing one part of the Earth's systems.

Earth System in a Bottle



Step 1
Add soil

1. Put about **three cups** of soil in the bottom section of the terrarium and pat the soil gently until it is fairly firm.



Step 2
Add water

2. Add about a **quarter cup** of water and look at the soil from the side to make sure that all of the soil gets wet. If there's still dry soil, add more water.



Step 3
Plant seeds

3. Drop **4-5 radish seeds** onto the surface of the soil. Use your fingertip to push the seeds just below the soil surface. Sprinkle a little more soil on top of the seeds just to cover them.



Step 4
Terrarium

4. Place the top section of the terrarium on top, pushing alternate flaps to the inside and outside so that it fits securely. Make sure the lip/top is still on the bottle.

5. Tape the top and bottom sections together to create an airtight seal.

6. Label the terrarium with your group's names and place it on a sunny windowsill (or under a grow light if you have one).

Experiments

Student groups: check with your teacher to decide which of the three experiments below you are doing.



No light!

To darken the terrarium, wrap it with a **sheet of foil** large enough to go around the bottle twice. Crimp the foil securely shut over the top and bottom of the bottle.



No soil!

Instead of soil, place a thoroughly **moistened paper towel** in the bottle, folded to fit into the bottom section.



No water!

Follow the planting directions above: except **omit the water**. Be sure to use previously dried soil.

Elementary GLOBE All About Earth: Our World on Stage We're All Connected Chart Template 1

Name _____ Date _____

Today I saw _____

Circle the part where it belongs.
Draw arrows to describe how to connect it to other parts.

Water

Soil and Rocks

Sun

Air

Living Things

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All Year Long Student Activity Sheet 2

Name _____

Date _____

Weather _____

Temperature Hot Warm Cool Cold

Big Picture View

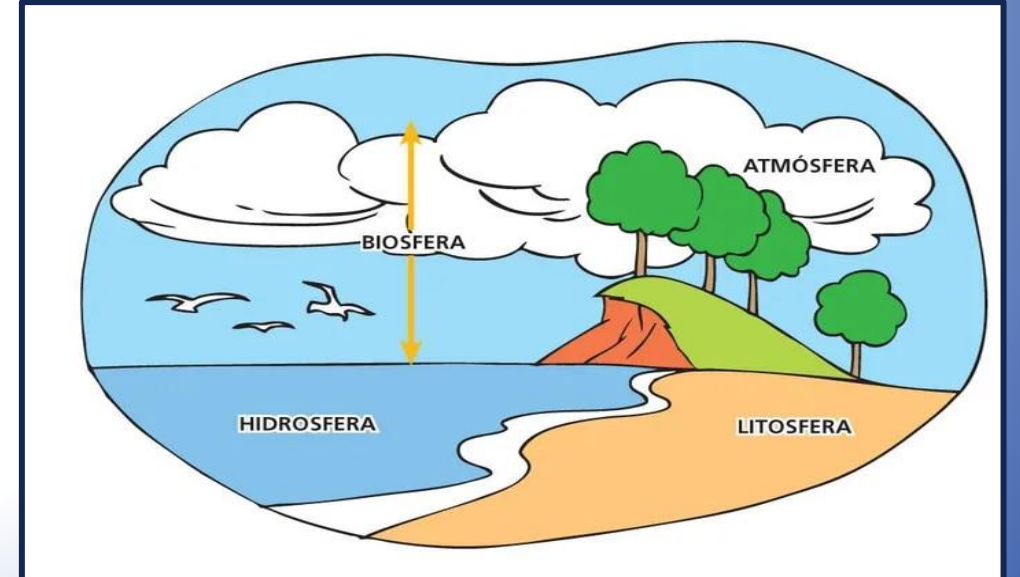
Write or draw your observations here.

Aktivnosti

- povezivanje boja u prirodi sa sezonskim promjenama u okolišu
- opažanje i crtanje okoliša
- praćenje promjena u prirodi
- pisanje izvještaja o stanju u okolišu
- razvijanje prirodoslovnog mišljenja – donošenje zaključaka temeljem promatranja i mjerenja
- uočavanje povezanosti živih bića s neživom prirodom

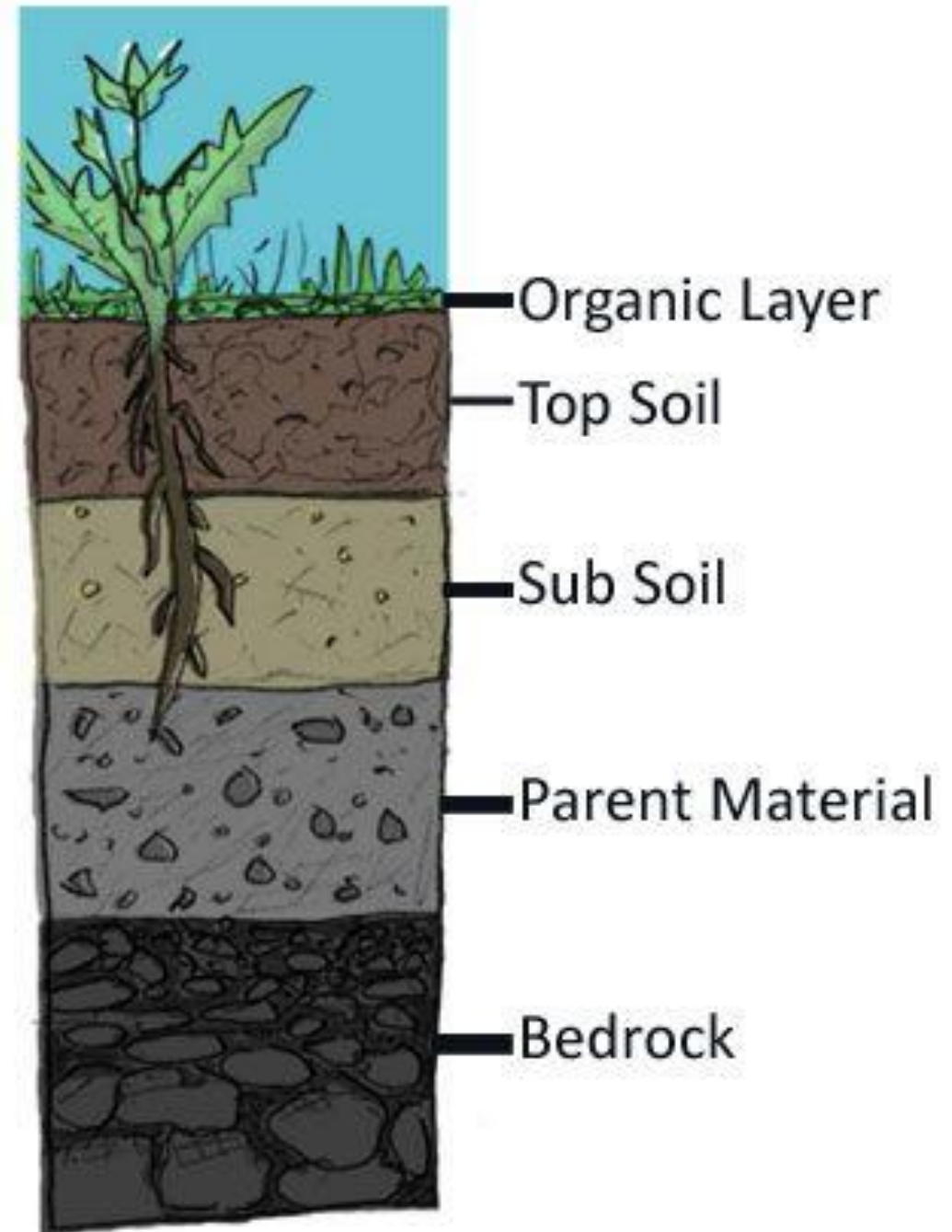
Aktivnosti

- razvijanje kreativnog mišljenja
- STEAM
- prezentiranje stečenog znanja izvođenjem i osmišljavanjem igrokaza





TLO

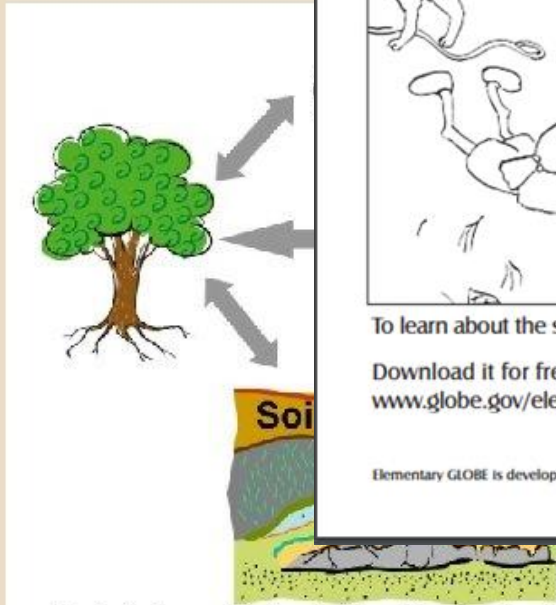


Aktivnost:

-upoznavanje nastanka tla

Soil Forming Factors

- Parent Material
- Climate
- Organisms
- Relief
- Time



<http://cals.arizona.edu/watershedsteward/resources/module/Soil/soils-intro-pg3.htm#>

Anita, Simon, and Dennis are studying soil in a hole that Scoop dug. Can you find Scoop in this picture?



To learn about the soils that Scoop dug, read the storybook, *The Scoop on Soils*.

Download it for free at the Elementary GLOBE website.
www.globe.gov/elementaryglobe



Elementary GLOBE is developed at UCAR with support from NASA.

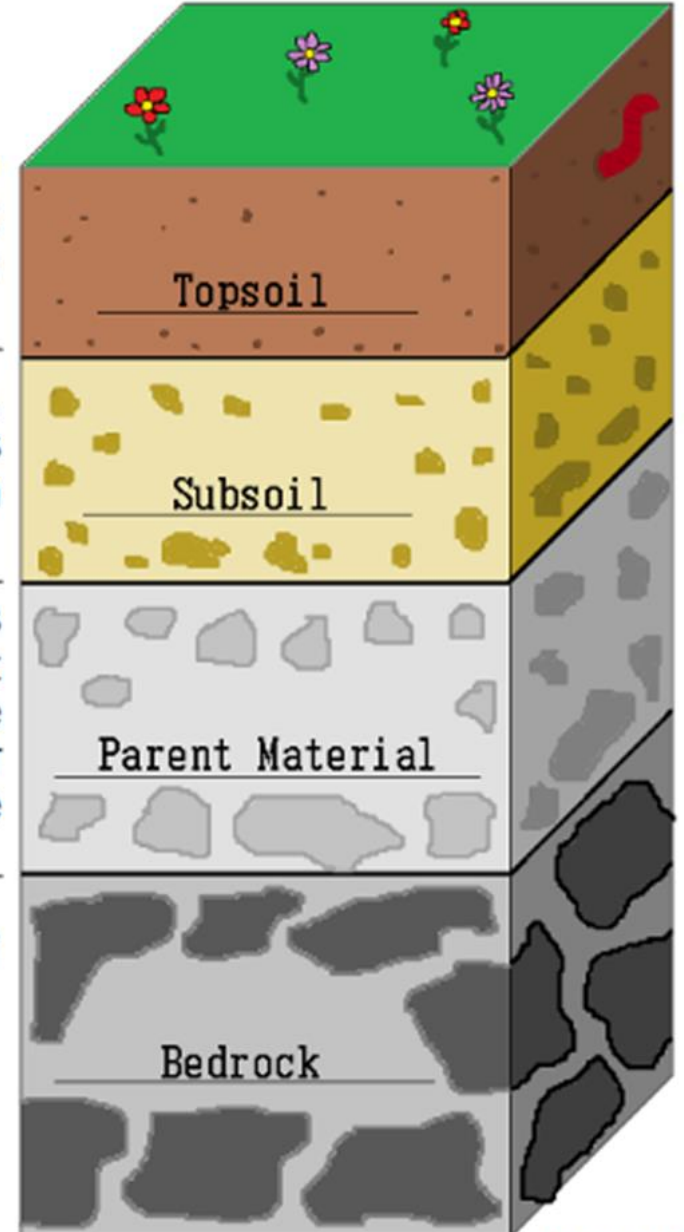
Layers of Soil

layer most plants

sand, that has broken y.

at has d. Not live cept for tree

vel of

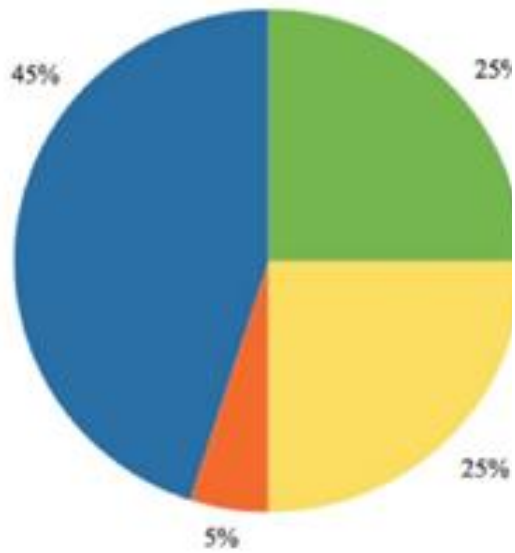


Soil profile

Aktivnost:

-upoznavanje sastava

IDEALAN SAS



Approximate Total Soil

Elementary **GLOBE** The Scoop on Soils
Soil Treasure Hunt Student Activity Sheet 1

Name _____ Date _____

My Soil Investigation!

My prediction or question about the soil is:

These are the things I found in the soil:

Elementary **GLOBE** The Scoop on Soils
Soil Treasure Hunt Student Activity Sheet 2

Name _____ Date _____

Outdoor Soil Investigation!

This is where I studied soil outside:

Soil Color

(Rub a little soil above to show color.)

These are the things I found in the soil:

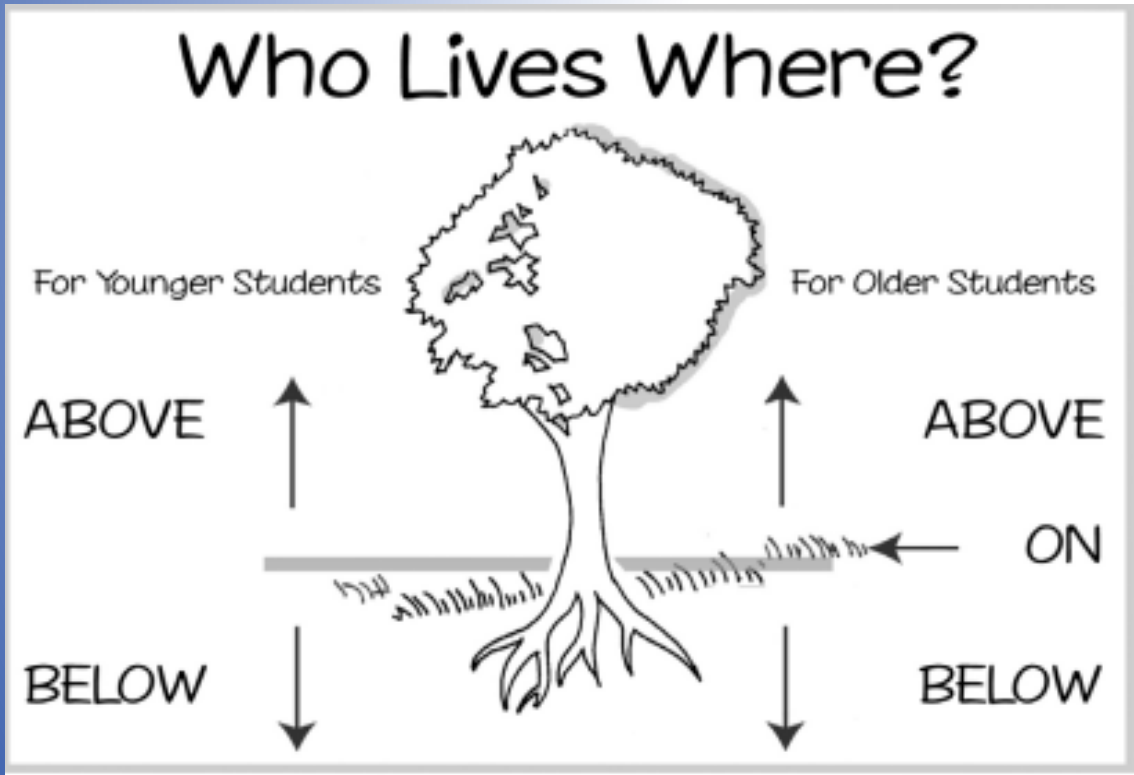
Ima važnu

Aktivnost:

- igranje igre: Tko živi na tlu i u tlu ?
- Svi trebamo tlo

- Rabbit + Dig + Soil = Burrow (Home)
- Worm + Dig + Soil = Tunnels (Home)
- Mole + Dig + Soil = Burrow (Home)
- Seeds + Plant + Soil = Plants (Food)
- Ants + Dig + Soil = Ant Colony (Home)
- Prairie Dog + Dig + Soil = Burrow (Home)
- Termites + Dig + Soil = Termite Nest (Home)
- Chipmunk + Dig + Soil = Burrow (Home)

- GROUP 3 + GROUP 2 + GROUP 1 + SOIL =FOOD/HOME
- Human + Plant + Corn Kernels + Soil = Corn Crop (Food)
"A human takes corn kernels and plants them in soil to grow corn for food."
- Human + Mix + Water + Soil (Clay) =Bricks for House (Home)
"A human mixes water and clay (soil) to make bricks to use when building a home."




Name _____ Date _____

Draw the parts of the soil connection in the boxes.

	+		+		=	
Item from Group 1 (Plants and Animals)		Item from Group 2 (Actions)		Soil		Type of Home/Food

Write your soil connection in a sentence.

We All Need Soil! Student Activity Sheet



The Scoop on Soils













THE GLOBE PROGRAM

A Worldwide Science and Education Program











We All Need Soil! Activity Cards Sheet 2

Group 1 Cards

 Rabbit	 Corn
 Worm	 Prairie Dog
 Chipmunk	 Ants
 Seeds	 Mole
 Termites	 Water

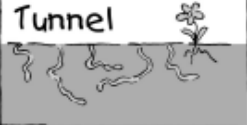



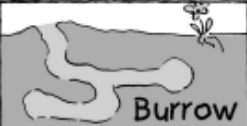
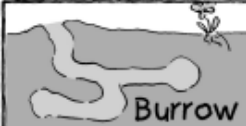




We All Need Soil! Activity Cards Sheet 3

Group 2 Cards

 Plant	 Plant
 Mix	 Mix
 Dig	 Dig
 Dig	 Dig
 Dig	 Dig

We All Need Soil! Activity Cards Sheet 4

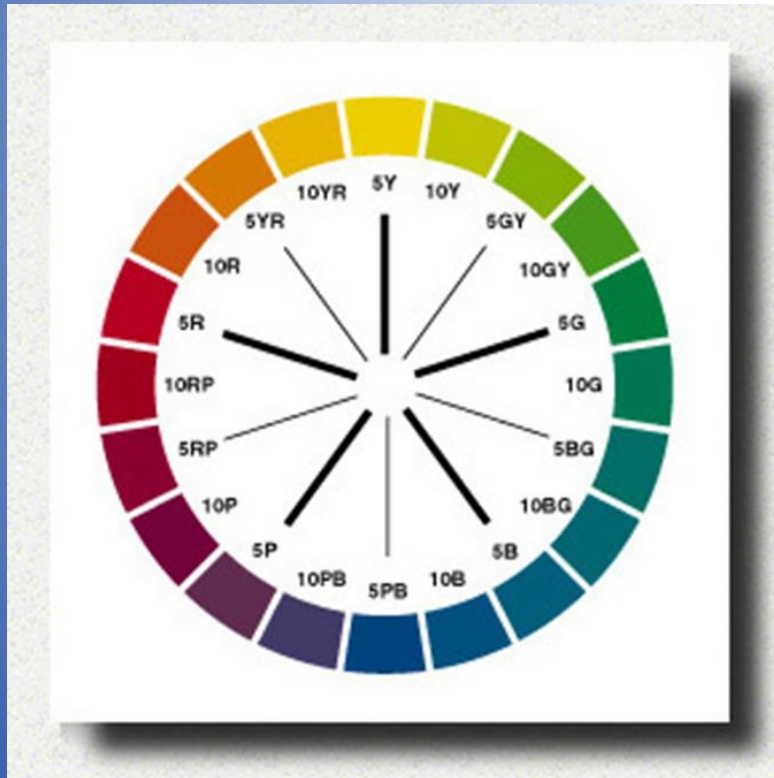
Home/Food Cards

 Tunnel	 Bricks
 Burrow	 Burrow
 Burrow	 Burrow
 Termites' Nest	 Ant Colony
 Garden	 Plants

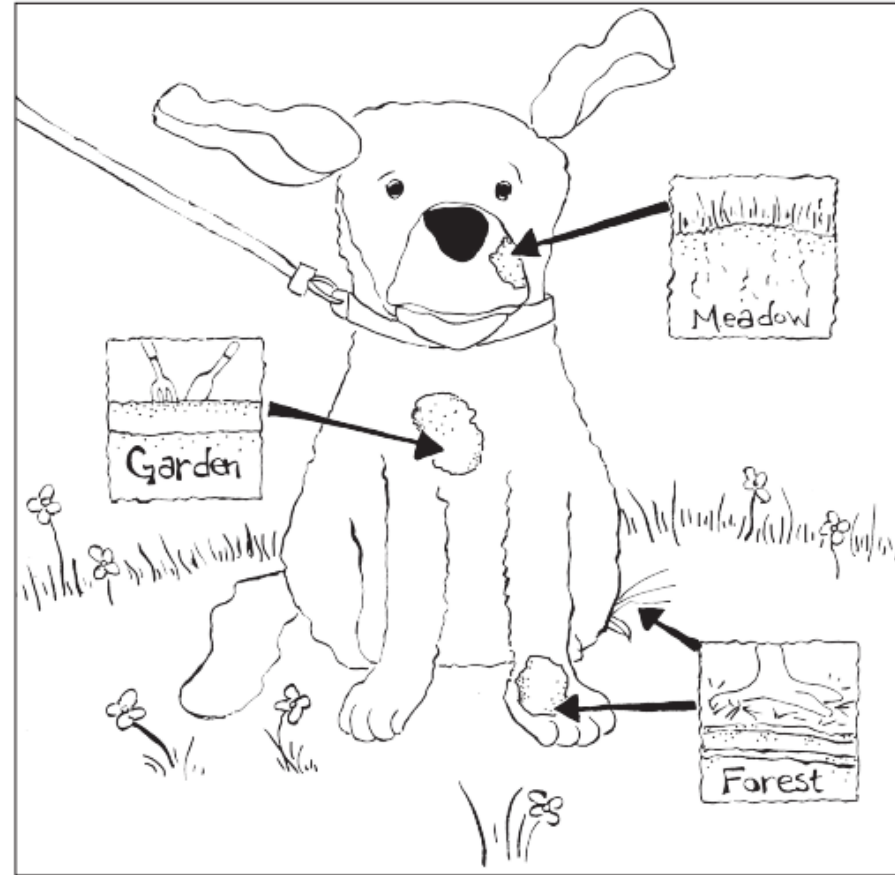
Aktivnost:

- upoznavanje svojstava tla: boja
- crtanje bojom dobivenom iz tla

MUNSELOVA LJESTVICA BOJA



Scoop is covered in soil! He's been digging holes in three places. Soils from different places can be different colors.



To learn about the soils that Scoop digs, read the storybook, *The Scoop on Soils*.

Download it for free at the Elementary GLOBE website.
www.globe.gov/elementaryglobe



Elementary GLOBE is developed at UCAR with support from NASA.



Soil Day COMPETITION
World Soil Day

Competition for School Students to be held on 5th December Organized by the Sri Lanka Society of Sri Lanka.

Where Food Begins

Open to public and private schools

Age 5-10 (age 11-14)

For color paintings

Prizes will be awarded

November 2022

Registration and your information
https://forms.gle/d/17KmsN_fXndcB-t

Shipping through registered post to:
Sri Lanka Society of Sri Lanka, SRICANSOL
Faculty of Agriculture, University of Peradeniya,

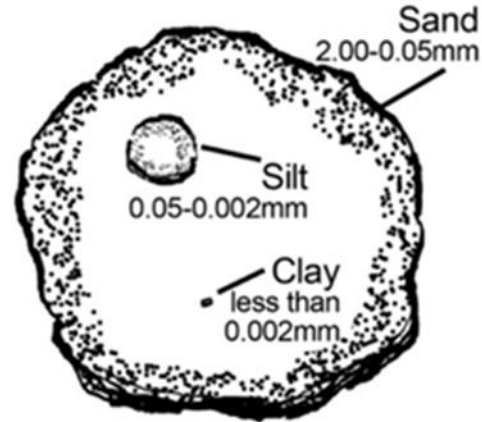
For more information visit web: <https://ssst.org>
Phone: 0719357648
Sri Lanka Society of Sri Lanka
slsocl@gmail.com
www.ssst.org



<https://www.globe.gov/3/i7955e/i7955e.pdf>

Aktivnost:

-procjena teksture tla osjetilima



Particle Size Comparison




	VELIČINA MINERALNE ČESTICE	OSJEĆAJ POD PRSTIMA
PIJESAK	0.05 mm do 2 mm	pjeskovit, zrnat
PRAH	0.05 mm do 0.002 mm	brašnast i gladak
GLINA	manje od 0.002 mm	ljepljiv i gust

Use your senses!
What does the soil look like?
What does the soil feel like?
What does the soil smell like?

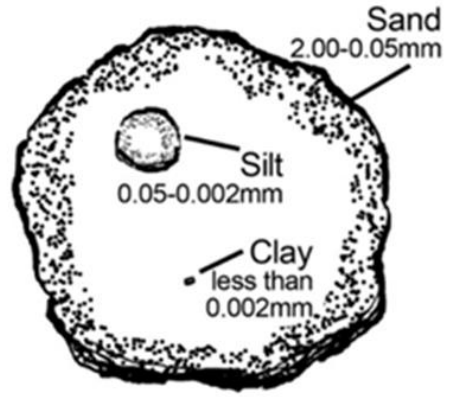
Name _____

Date _____

My observations about types of soil

	Sand	Silt	Clay
 What I see			
 What I feel			
 What I smell			

Aktivnost:
-upoznavanje
svojstava tla:
tekstura



Particle Size Comparison



Elementary GLOBE The Scoop on Soils

Getting To Know Soil Student Activity Sheet 2

Name _____ Date _____

The soil in the jar looked like this after:

2 minutes 10 minutes 24 hours (1 day)

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Elementary GLOBE The Scoop on Soils

Getting To Know Soil Student Activity Sheet 3

Directions: Name _____

- Cut along the dotted lines.
- Color the layers on the bottle with pictures the colors you see in your bottle.
- Fill in the missing letters on the bottle with words.
- Put the bottle with words on top of the bottle with pictures and staple them together on one side at the black marks.

water

—rganic

— ay

—ilt

—and

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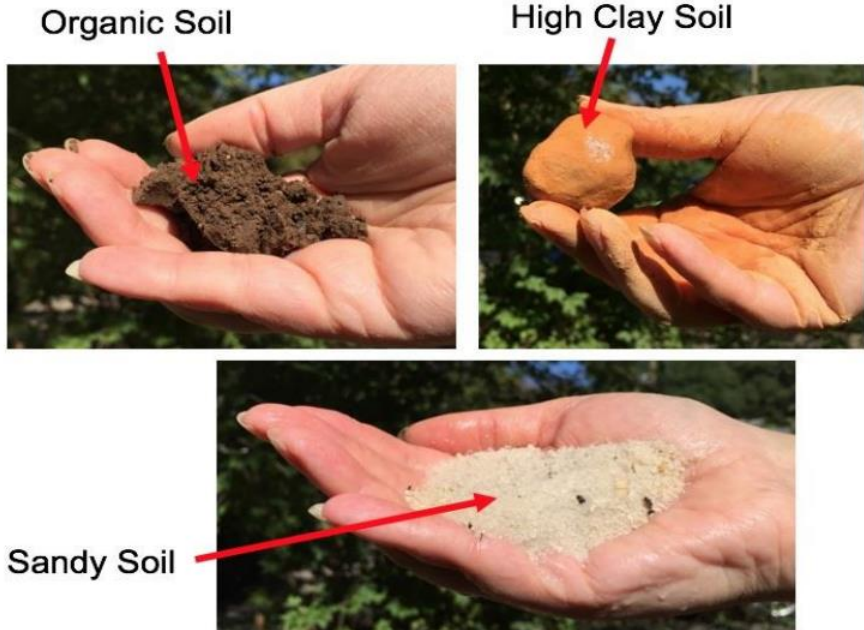
Aktivnost:

-procjena
teksture tla na
temelju
oblikovanja
prstima

	pijesak (sand)	ilovasti pijesak (loamy sand)	ilovača (loam)	glinena ilovača (clay loam)	glina clay
OBLIKOVANJE GRUMENA VELIČINE JAJETA I VRPCE	Od vlažnog uzorka se ne može oblikovati grumen.	Od vlažnog uzorka se oblikuje grumen i stiskanjem između palca i kažiprsta se oblikuje mala vrpca.	Od vlažnog uzorka se oblikuje grumen i stiskanjem između palca i kažiprsta se oblikuje vrpca manja od 2cm.	Od vlažnog uzorka se oblikuje grumen i stiskanjem između palca i kažiprsta se oblikuje vrpca dulja od 2 cm do 5cm.	Od vlažnog uzorka se oblikuje grumen i stiskanjem između palca i kažiprsta se oblikuje vrpca dulja od 5cm.
IZGLED UZORKA, LJEPLJIVOST, OPIP POD PRSTIMA	Sipke čestice.	Staviti na dlan i trljati kažiprstom, javlja se pjeskoviti osjećaj.	Glatko i lagano za stisnuti, slabo ljepljivo.	Slabije ljepljivo i lakše se stisne od gline.	Jako ljepljivo, teško za stisnuti, ostavlja prljave ruke, sjajno uslijed trljanja.

Aktivnost:

-razumijevanje kako voda teče kroz različite vrste tla i kako se mijenja prolaskom kroz ta tla



Water For Plant Use



Water Storage



Atmospheric Humidity



Evaporation

Models are representations of concepts, objects, or systems, some of which can be excellent teaching tools. A household sponge will be used to demonstrate several characteristics of the relations of soil and water.



"Dry" Soils



Infiltration and Runoff



Wetting and Saturation



Water Holding Capacity



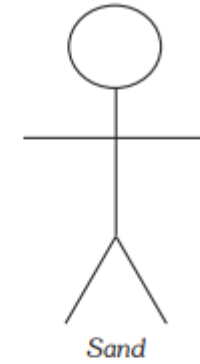
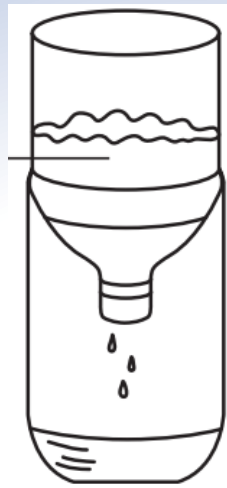
Percolation and Drainage



Engineering and Bearing Capacity

Aktivnost:

- ispitivanje propusnosti različitih vrsta tla
- igranje igre „Biraj stazu”



Just Passing Through – Beginners

Work Sheet

Look and Guess

My soil is _____ color



My soil looks granular blocky

My soil has leaves. YES NO



Time _____



How much water will come out? Make your line RED.



What will the water look like? (CIRCLE)

Just Passing Through Beginners Work Sheet (continued)



Experiment and Report

Time _____



How much water came out?



What did the water look like?

My Report



<https://www.soils4kids.org/files/s4k/perkin.pdf>



Aktivnost:

-istraživanje koja je vrsta tla najbolja za uzgoj biljaka



Pribor i materijal:

četiri prozirne plastične čaše, različite vrste tla (pijesak, zemlja s vanjskog vrta, glina...), velike sjemenke graha i voda.

Postupak:

- napuniti čaše do $\frac{3}{4}$ visine različitim vrstama tla
- posadite 2-3 sjemenke graha u svaku čašicu (više uz rub da bi mogli bolje promatrati rast sjemenke)
- u svaku dodati jednaku izmjerenu količinu vode
- napraviti radni list za bilježenje rezultata
- predviđati ono što misle da će se dogoditi
- crtati i bilježiti opažanja

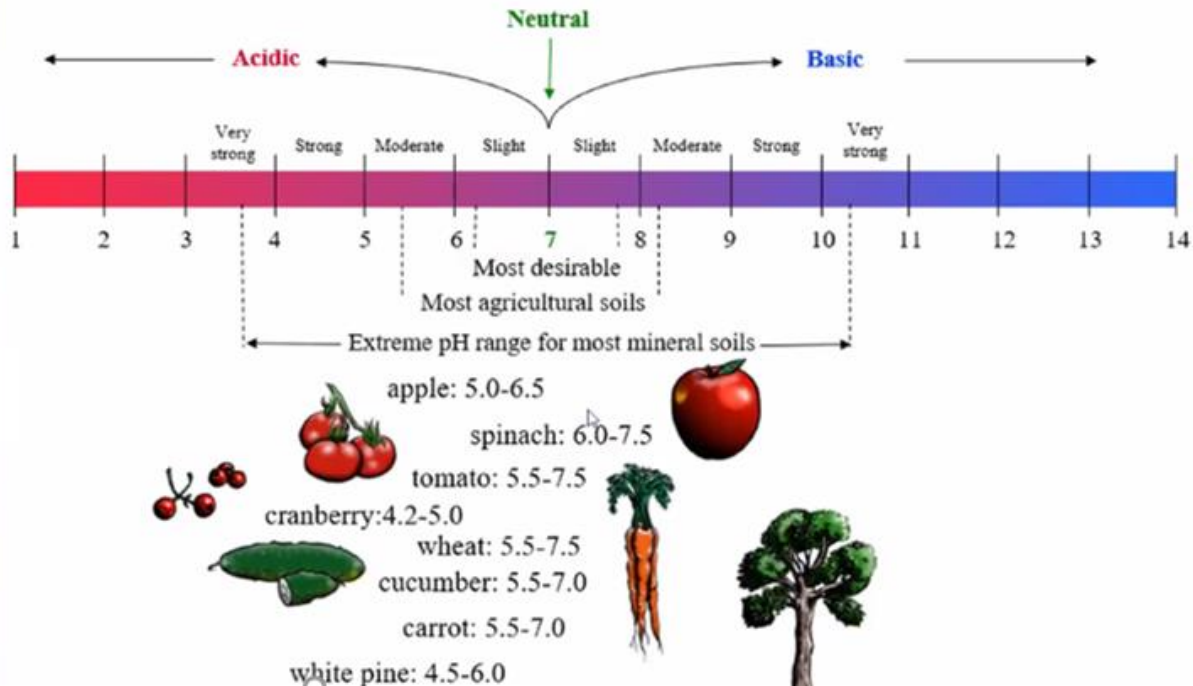


Aktivnost:
-ispitivanje pH tla



pH Mjerenja

Moguć raspon pH vrijednosti u tlima



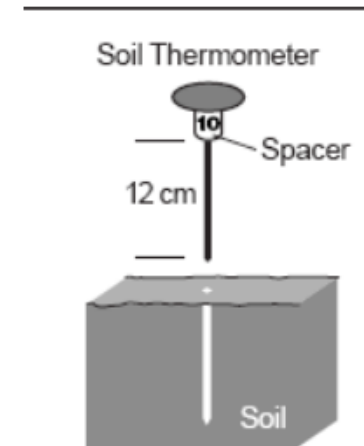
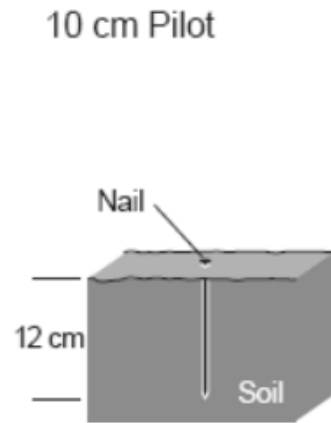
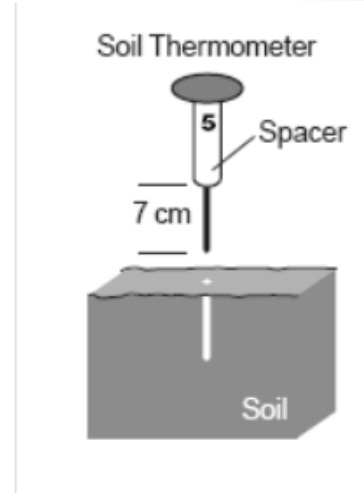
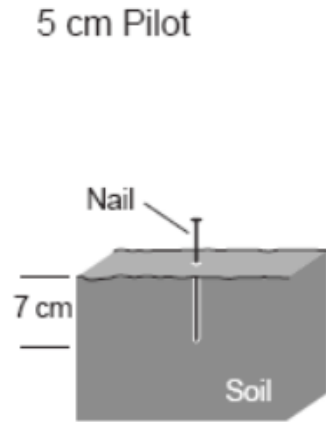
Postupak:

- pomiješati istu količinu tla i destilirane vode (omjer 1:1)
- dobro miješati nekoliko minuta
- pustiti da se talog tla slegne na dno čaše
- kratko uroniti trakicu indikatora u bistru otopinu i odrediti pH vrijednost usporedbom sa skalom boja na pakiranju

Aktivnost:

-mjerjenje temperature tla
na 5 cm dubine i 10 cm
dubine

Potreban pribor: ubodni
termometar, markirani čavao



VODA

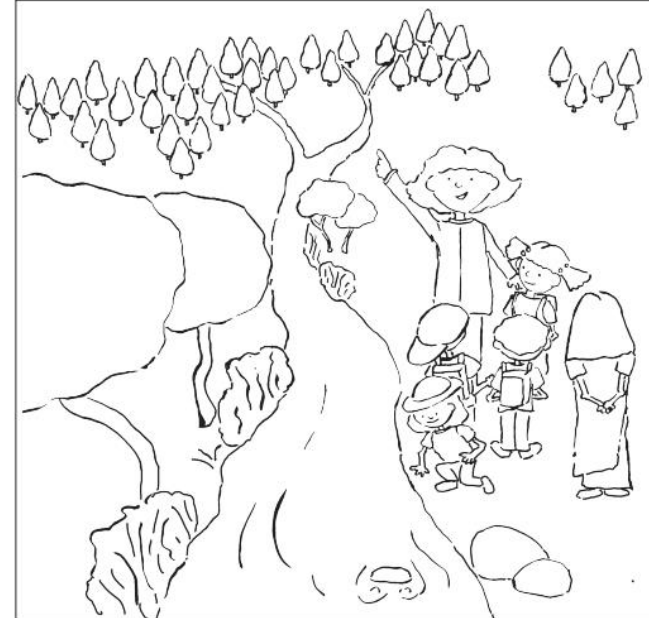


Aktivnost:

-opisivanje i crtanje
vodenog tijela u svom
okolišu



The GLOBE Kids are on a field trip to Willow Creek. They are excited to make observations of the creek.



To find out what they learn about, read the storybook, *Discoveries at Willow Creek*.

Download it for free at the Elementary GLOBE website.
www.globe.gov/elementaryglobe

Aktivnost:

-mjerenje temperature vode

Postupak:

- termometar uroniti na 10 cm dubine u kantu s vodom
- čekati tri minute i očitati temperaturu
- postupak ponoviti tri puta


VIDEO UPUTA ZA MJERENJE TEMPERATURE VODE

<https://youtu.be/JILxeToZi9Y>





Reading Thermometers Name: _____ Date: _____

Match up each season to the thermometer that shows the most likely temperature for that season.





Spring







Summer






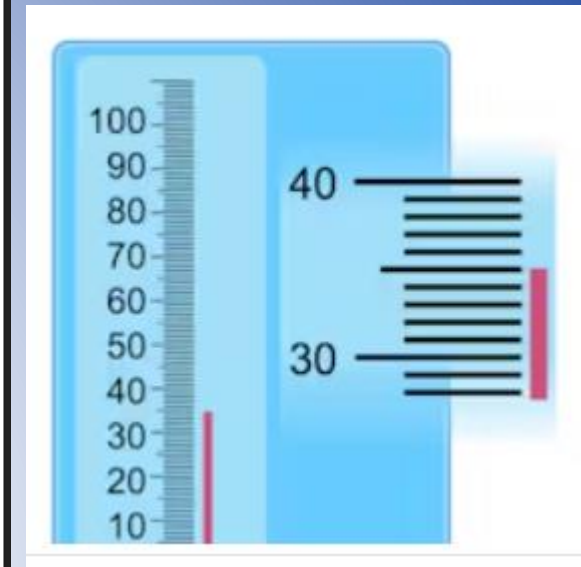
Autumn





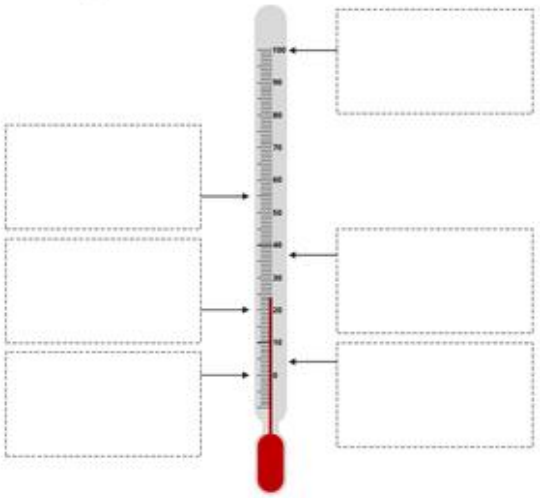
Winter











Reading Thermometers Name: _____

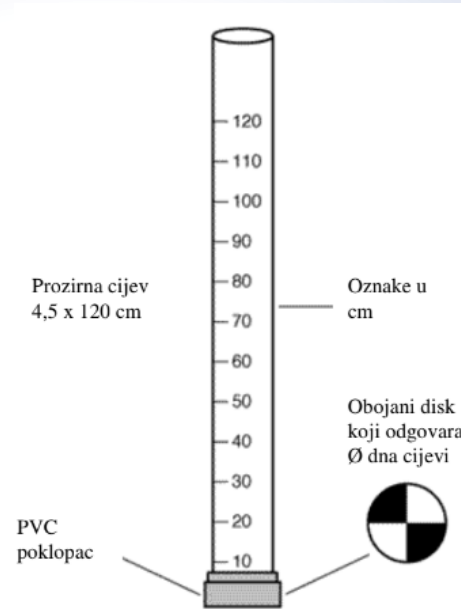
Cut out the labels and stick them onto the diagram of the thermometer in the correct position.



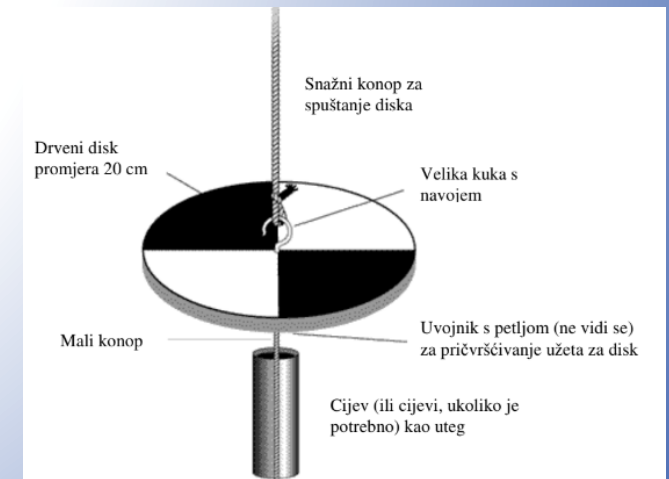
-  room temperature 20°C
-  fridge 4°C
-  water boiling 100°C
-  water freezing 0°C
-  hot bath 55°C
-  body temperature 37°C

Aktivnost:

- određivanje prozirnosti vode
- istraživanje utjecaja suspendiranih čestica na prozirnost vode



Sample	Student #1	Student #2	Student #3
Water in bucket			
Tube placed in bright light			
Water with soil (2 grams)			
Water with soil (4 grams)			
Water with soil (6 grams)			
Green water (2 drops)			
Green water (6 drops)			







Aktivnost:

- mjerjenje pH vrijednosti vode
- igra „Vodeni detektivi”

<https://www.globe.gov/documents/11865/0fffb28b-c06f-4ae6-8375-6abd0ec8a854>



Cup	Look 	Listen 	Smell 	Feel 	pH Test
1 one					
2 two					
3 three					
4 four					

1. Look at the cups. Put an X next to the cups that do not look like water.
2. Listen to the cups. Put an X next to the cups that do not sound like water.
3. Smell the cups. Put an X next to the cups that do not smell like water.
4. Feel water dipped from the cups. Put an X next to the cups that do not feel like water.

Which cup has ONLY water? _____

EVALUACIJA:

<https://docs.google.com/forms/d/1ZIIIUWFRpkirfSNHbgfzZNldW3h0trH-9SaN3VsKdW8/edit>

