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Subject: Science, Art, Technology  
Grade Level: Kindergarten-2<sup>nd</sup> Grade

## **Desert Life**

Description: In this unit the students will learning about the desert and the mammals, birds, insects, reptiles, and plants found there. Each week will be spent on a different topic with a total of six weeks for complete. Students will keep a Desert Journal. They will grow their own cactus and bean plant and chart growth rates. They will work in small groups of three to make a desert mural and write a brief description about their mural.

Faith Integration: God bids us learn of Him through the study of His creation. In this unit they will see the wisdom of God in design, His sense of humor, and His loving care. Using the Bible as their guide they will see God's word in action throughout and be able to apply this to their lives.

Ex: The Cactus Wren makes its nest in the midst of the sharp spines of the Cholla Cactus where it need not fear its enemies. So in Ps 4:8 we read "I will both lay me down in peace and sleep: for thou, Lord, only makest me dwell in safety."

### Curriculum Benchmarks:

- Students will be able to give three reasons why the desert soil can not hold water after a heavy rainstorm and be able to discuss at least two of the problems that result from this.
- Students will be able to identify the 'Chain of Life,' tell how it effects desert life and what might happen if it were broken.
- Students will be able to define 'estivation' and 'camouflage' and tell how they effect the mammals of the desert.
- Students will be able to discuss two adaptations mammals have made in order to survive.
- Students will be able to list two functions the cactus serves in the desert community.

- Students will be able to discuss two ways birds help the desert community.
- Students will be able to tell the difference between insects and anthropoids.
- Students will be able to recognize poisonous insects and anthropoids.
- Students will be able to recognize and describe at least two of the following: birds, mammals, insects, anthropoids, cactus, and reptiles.
- Student will be able to give at least two comparisons from each of the above mentioned to the Christian life.
- Working in groups of three students will make a desert mural depicting accurate scenes of desert life.
- Each student group will be able to give a Slide Show presentation using Bible text to illustrate desert life.
- Students will be able to use the Internet to find information and pictures for their journal

Materials/Hardware/Software:

Books:

Great American Deserts by Rowe Findley, Prepared by the Special Publications Division, National Geographic Society, Washington, D.C., 1972.

Disney's Wonderful World of Knowledge, volume 1, Animals, Grolier Enterprises, Inc. Danbury, Connecticut, 1982.

Classroom computer and printer

KidPix Deluxe CD-Rom, The Learning Company 2000, Broderbound, Micro Soft PowerPoint, Micro Soft Excel.

Desert Journals

Cactus seeds, pots, soil, and beans.

Paper, pencils, color pencils, markers, crayons, scissors, paint, and ruler.

Sample of PowerPoint presentation

Teacher will download any worksheets the students may use.

Pictures of the desert

Toothpicks

Teacher Preparation:

Secure materials listed in preceding section.

## Cactus

Two boxes with soil; plants; garden hose.

Bookmark the following sites:

<http://wbu.com/chipperwoods/photos/cowbird.htm>

<http://mamba.bio.uci.edu/~pjbryant/biodiv/spiders/Bothriocyrtum californicum.htm>

<http://www.desertusa.com/animal.html>

[http://www.blueplanetbiomes.org/kangaroo\\_rat.htm](http://www.blueplanetbiomes.org/kangaroo_rat.htm)

<http://www.owling.com/Elf.htm>

<http://www.peachtree-online.com/hornedsite/facts.htm>

<http://www.nps.gov/moja/mojadena.htm>

<http://www.whitethornhouse.com/cacti/cacti.htm>

[http://www.desertmuseum.org/books/nhsd\\_trapdoor\\_spider.html](http://www.desertmuseum.org/books/nhsd_trapdoor_spider.html)

[http://www.austmus.gov.au/factsheets/trapdoor\\_spiders.htm](http://www.austmus.gov.au/factsheets/trapdoor_spiders.htm)

### Student Preparation:

Students need to be able to do the following:

- Use computer and printer.
- How to use KidPix Deluxe.
- How to access information from Internet and other sources.
- How to record information onto a spreadsheet.
- How to put together a PowerPoint presentation.
- How to measure and record growth of plant.
- How to work as a team to draw a mural.
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### Activities/Procedures:

#### First Week-The Desert

- Introduce and show pictures of the desert. Discuss the type of weather found in the desert. Compare the desert at night to the desert at day. Discuss the results that heavy wind and rain will have on the desert and compare it to a spring rain. Begin work on Desert Journal.
- Show picture of the desert before and after a heavy rain and a spring rain.
- Discuss the adaptations that the seeds and flowers have that enable them to survive in the desert. Compare to Christian life. Work in Desert Journal.
- Introduce briefly plant and animal life found in desert. Show picture and work in Desert Journal.

- Discuss how each form of life is dependent on each other for survival. (Chain of Life.) Discuss what might happen if the chain is broken. Compare to the Christian life. Work in journal.
- Start work on murals.

#### Discussion Questions:

- Why does water from heavy rain run off quickly and what damage does it cause?
- Why might it be bad to carry plants and animals from one area to another?
- Why do some deserts have no plant or animal life?
- Which desert is the largest? Smallest?
- Which continent is mostly desert?

#### Object Lessons

- Seed =us; coat around seed = Satan; rain = Christ love. Ephesians 5:26.
- Desert = us (shifting sands); wind = temptations; plants = Christ our stronghold. Matthew 7: 26, 27.
- Desert = us; spring rain = love of Christ; Flowers =love of Christ through us. Isaiah 35:1.

Experiment: For this experiment you will need two boxes of soil. In one box have several plants growing; the other will have no plants. With a garden hose spray the box with the plants. What happened to the soil? Now spray the box without plants. What happened to the soil?

Format for Journal: Will have pictures about the topic of the day. Will list at least five ideas about the topic. For example, if discussing Saguaro Cactus the student will list the cactus, draw or download a picture, list three characteristics, and be able to tell what family the cactus is from. The student will also list related cacti. Students will list lessons learned about Christian life.

#### Week Two-Cactus

- Show pictures of and discuss the five families of cactus.
- Every day take an imaginary walk through the desert to visit a different type of cactus.
- Observe a cactus plant – cut a section open to examine.
- Work on Desert Journal.
- Grow own cactus and bean plant. Compare growth rates.
- Work on Murals.

### Discussion Questions:

- Why are spines better in dry climates than broad leaves?
- How do thorns help keep the cactus alive?

### Object Lessons:

- Cactus sends down deep roots in search of water in order to survive; so also we must search the scriptures for wisdom and eternal life. Proverbs 2:4; John 5:39.
- Saguaro cactus supplies shelter and protection for many of the desert birds. So Christ is our shelter and protection in the time of trouble. Ps. 61:13
- Just as the cactus has a waxy covering to protect it from the evaporating rays of the sun, so we have the love of Christ to shield us from the evaporating rays of sin. Ps. 5:12

### Directions for growing own cactus and bean plants:

Use a shallow pot with holes in the bottom and fill with fine, loose soil. Sprinkle seeds over the surface and then cover lightly with fine, clean sand. Cover the pot with a flat piece of glass to hold moisture around the seed. Place the pot in hot water and keep water in pan until germination is complete. Keep in even 72-74 degrees heat and plants will germinate in 3-10 days.

After germination gradually cut down on watering. When seedlings are  $\frac{3}{4}$  to 1 inch tall they can be placed in flats. Keep out of direct sun, as they are tender and can get sunburn.

### Week Three-Mammals

- Introduce desert mammals.
- Each day visit a different mammal. Discuss how it fits into the chain of life.
- What would happen if the chain of life was broken
- Desert Journals/murals
- Compare to the Christian life.

### Discussion Questions:

- What two things do mammals get from the plants and animals that they eat?

- What does estivation mean? Why do some mammals do this?
- What are two different ways that mammals protect themselves from the heat of day?

Object Lesson:

- Mammals = us; cactus shade = Christ love; sun = Satan or sin Ps. 121:5
- Pack rat exchanges something beautiful, shiny, and valuable with some worthless piece of junk, such as a stick or a rock. So Satan replaces our beautiful character with ugly ones.
- Kangaroo rats scatter and bury seeds. When the rain comes the scattered seed bloom making the desert beautiful; so we are to scatter the seeds of God's word so that when the Spirit pours its love the seeds of God's word may bloom in the hearts of men.

Experiment: Take a box of toothpicks and divide them into two equal piles. Color one of the groups green. Take toothpicks to a large grassy and strew them around. Have the class see how many toothpicks they can find in five minutes. Count each group. How many natural colored ones did they find? How many green ones? Did the green coloration protect the toothpicks from being discovered?

- Discuss why camouflage is important to the animals and how they use it.
- Compare camouflage to Satan's traps.

Week Four-Snakes and Lizards

- Introduce snakes and lizards. Discuss different one everyday.
- Desert Journal/mural
- Continue chart growth rate of plants.

Discussion Questions:

- Snakes/lizards: think about the way they move. Which one has more of its body touching the ground?
- Why do Gila Monsters sore food in their tail?

Object Lessons:

- When a lizard is caught by the tail it will let it go rather than be eaten. But this does not bother him for he will grow a new one. So also when

Satan has you by the tail (bad habits) let them go and replace with new ones.

- Reptiles are cold-blooded; therefore, their temperature depends upon their surroundings. So it is with some Christians, they depend on their surroundings for their Christian temperature.

#### Week Five-Insects/Anthropoids

- Introduce each group.
- Desert Journal/mural

#### Discussion Questions:

- What is the difference between an insect and an anthropoid?
- How do they fit into the chain of Life?

#### Object Lessons:

- Tarantula lays in wait = Satan, evil doers; Ps. 10:9,10, Ps. 59:3.
- Trap Door Spider = Satan, beautiful tunnel tube door – temptation, Jeremiah. 5:26.
- Western Cone-Nose bug sucks blood and causes a form of sleeping sickness; so Satan slowly robs us of our life force and causes a form of sleeping sickness by focusing our attention on the things of this world and away from Christ.
- Tarantula Hawk will paralysis and destroy its victim; so sin in our lives will paralysis and leave us helpless to Satan's destroying power.

#### Week Six- Birds

- Same as weeks 2-5

#### Discussion Questions:

- What are two ways birds help the desert community?
- Why do birds drink very little water?
- Why do you think birds are so active in the day compared to mammals that are not?

#### Object Lessons:

- Saguaro Cactus =us beetle larvae = sin (slowly kills) Gila Woodpecker = cleansing process of Christ; Elf Owl = share what Christ has done for us with others. Ps. 19:12.

- Father Covey Quail = Christ baby quail = us father watches for danger while the young get food and water. Ps. 33:18,19; 2Ch. 16:9.

#### Management Plan:

The students will be reminded about the rules for proper computer use and etiquette and be expected to follow them. Students will have a sign-up sheet for individual computer time throughout the day. During Science class groups will rotate time on computer with library use and time on their murals. Students will be shown how to download and save material to their own folders. Teacher will monitor to make sure only listed sites are visited.

#### Ethics Plan:

Before the unit begins students will receive a mini lesson on copyright laws and plagiarism. They will be reminded that unlawful use is the same as stealing. They will be shown how to give proper credit to all information obtained from the Internet.

#### Assessment/Evaluation

- Class participation and discussion
- Group murals (rubric)
- Desert Journals
- Graph of comparison growth rates

#### Follow-up Activities:

Each group may choose one of the following ways to share what they have learned in this unit with their parents at Parents Night:

- PowerPoint Presentation illustrating Bible texts with desert themes.
- Habitat dioramas with one page description.

## Mural : Desert Life

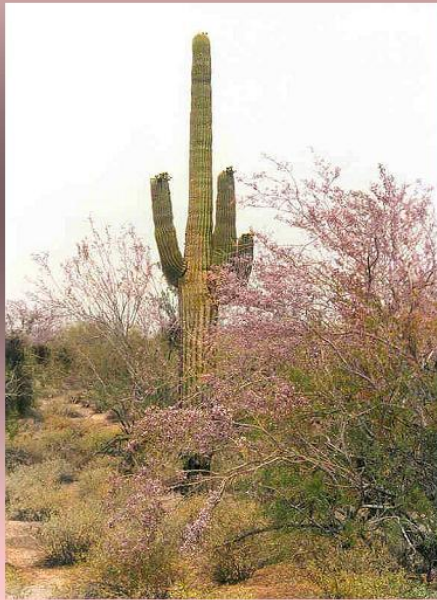
Teacher Name: **Mrs. Yankee**

Student Name: \_\_\_\_\_

| CATEGORY                   | Master=4 points   | Apprentice=3 points  | Novice=2 points   | Untrained=1 point   | Score |
|----------------------------|---|--|---|---|-------|
| Planning/organization      | Student can describe the intent and plan of complete mural and how his/her part will contribute to the whole. Works with team to come up with general plan of what will be done before beginning. | Student has carefully planned his/her part of the mural and can describe how s/he will get the work done and a vision for his/her part. Gets team input on plan for his/her contribution before beginning. | Student has planned his/her part of the mural and can describe how s/he will get the work done and a vision for his/her part. Does not solicit much group input when making plan. | Leaps into action without any evidence of planning or focus.  |       |
| Thematic Accuracy          | The student's portion of the mural fits the theme of the assignment and all of the team's items are accurately placed on the background.  | The student's portion of the mural fits the theme of the assignment and most of the team's items are accurately placed on the background.  | The student's portion of the mural fits the theme of the assignment.  | The student's portion of the mural does not fit the theme of the assignment.  |       |
| Drawings                   | Drawings are recognizable, detailed and colored accurately. Overall, the drawings are original and skillful.  | Drawings are recognizable and colored accurately. Overall, the drawings are original and done with some skill.   | Drawings are recognizable and reasonably accurate. They are copied, printed or traced rather than original.   | Drawn objects are difficult to recognize AND/OR not accurate  |       |
| Color Use                  | The colors in the mural work well together and form a strong coherent statement. The color choice is appropriate for the theme.   | The use of color is coordinated across the mural and is appropriate for the items and theme.   | The overall use of color is ok, but is not as strong or coordinated as it could be. Some attempt at coordinating colors is evident.   | Color choice for various items in the mural seems inappropriate.  |       |
| Collaboration and Teamwork | The group worked well together with all members contributing significant amounts of quality work. All group members participated in discussion and actively listened to others.                   | The group generally worked well together with all members contributing some quality work. All group members participated in discussion and actively listened to others.                                    | The group worked fairly well together with all members contributing some work. Most group members participated in discussion and actively listened to others.                     | The mural appeared to be the work of only 1-2 students in the group AND/OR there was little discussion, working together or active listening. |       |

Sample PowerPoint page

For thou hast been a shelter for me, and a strong tower  
from the enemy. Psalms 61: 3



by Steve Canipe

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