Careers in Action **TEKStar Lesson Summary**

Lesson Title Don't Mess with Texas: From Start to Finish
Grade Level Second Grade
Course Number SC 112.4 **Course Name** Science, Second Grade

Keywords

Agriculture Science, researcher, cholesterol, journal, data, careers, measurement, texture

SE Course

SC 112.4: 2.1 (A), 2.2 (A)(B)(C)(D)(E)(F), 2.3 (A)(B), 2.4 (A)
ELA 110.4: 2.1 (C), 2.10 (A), 2.14 (D)

SE Cross Curricular

ELA 110.4: 2.1 (A)(B), 2.3 (A)(C), 2.4 (A)(G)(H), 2.12 (A)(G)(H), 2.14 (A)(B)(D), 2.20 (A)(B)(D)
MATH 111.14: 2.7 (A), 2.9 (A) (B), 2.13 (A)
SS 113.4: 2.17 (B) (E), 2.18 (A) (B)

TAAS

RE 2: 3.7 (B), 3.9 (C)(F), 3.12 (E)
WR 1: 4.15 (C)(D)(F)

TAAS II/TAKS

RE 1: 3.7 (B), 3.9 (H)(I)

Lesson Summary

TEKS, TAAS/TAKS, and personal skills valued by educators and employers are taught as students experience the career area of **Agriculture Science and Technology.**

In this lesson students will have an opportunity to experience the role of a Researcher in Agriculture Science as they ask questions, gather information, conduct simple descriptive investigations with Texas citrus and vegetables, and develop reasonable explanations and conclusions. They communicate explanations by completing an Inquiry Chart, Fruit and Vegetable Research Journal, and Poetry Frame. Finally, they plant a Classroom Garden and develop a commercial to sell their produce.

Arrangements are made with the Tech Prep Office at (956) 364-4548, Fax (956) 364-5143 or by using Tech Prep Inc.'s website (http://techprepRGV.com) for a speaker, mentor, and/or field trip. These experiences enable students to investigate the actual careers in action.

This lesson was developed in Summer 2000 as part of a Careers in Action project led by Tech Prep of the Rio Grande Valley, Inc., and funded with School-to-Careers grant funding through the Texas Education Agency and the Texas Workforce Commission. Following a pilot project by Tech Prep Support Teams, revisions were made in the Spring of 2002.

This lesson has been endorsed by John Da Graca, Deputy Center Director of Texas A&M University Kingsville Citrus Center in Weslaco, Texas.

Evidence of Success

Students will become familiar with careers in Agricultural Science and Technology by utilizing the scientific process to research and complete science study/projects thus becoming aware of the differences among Texas citrus and vegetables. Additionally, the student is expected to demonstrate an understanding of investigation skills required to have a career in research.

Personalize the Learning

1. Hold up a paper sack in front of the class. Tell the class that inside the bag is a mysterious "thing." Since they can't see the mysterious "thing" they must rely on some of their other senses, such as touch and smell. Allow students to volunteer to place a hand in the bag to touch the mysterious "thing." Have each volunteer guess what they think it is. Ask several more students to touch or smell (without looking) and guess as well. After several guesses or a whole class guess, have the class reach a consensus, and then show them the mysterious "thing". (Choose Texas grapefruit, oranges, tangerines, lemons, limes, etc.) Tell students that they have been acting like detectives or researchers.

2. The teacher will then have students answer questions such as:

   - Where do you think this fruit is grown?
   - What types of fruit do your parent buy?
   - Have you ever seen fruit growing on trees? Where?
   - Do you think Texas fruit tastes better than fruit grown in other states?
   - What do Texas growers do to their fruit to make it the best?
   - Do Texas growers care if their fruit is better?
   -

3. Relate to students how research is being conducted at Texas A&M University-Kingsville Citrus Center in Weslaco, Texas that shows how grapefruit helps people by lowering the level of cholesterol in the human body.

Relevance

Research affects every part of our lives from the water we drink, the food we eat, the clothes we wear, and the air we breath. Someone somewhere studied and researched to make things better such as cleaner water, more nutritious foods, warmer/cooler fabric for our clothes, and cleaner air.

After an internship with Texas A & M center in Weslaco, Texas, it became evident that extensive research skills aided in the creation of the world famous Texas Ruby Red grapefruit. All the details from the soil, water, seed, sunlight, temperature, etc. affect the growth of all plants.

Currently there is a demand for students with degrees in plant and soil science, agri-business, and agricultural sciences. Agriculture is the science, art, and business of cultivating the soil, producing crops, and raising livestock useful to man while constantly working to find new and better solutions to real-life problems.

Careers in Action

TEKStar Activity Summary

Lesson Title A Researcher At Work: Let's Find Out **Time Frame** 45 minutes

Activity Description

Begin the lesson by writing the word RESEARCH on the board and put a box around the letters SEARCH. Ask students what the word "Research" means as you point to the boxed letters. Explain that research means to search. But to search for what? Discuss that there are many types of Researchers- People who search a lot- who research lots of different things such as: plants, animals, diseases, medicine, bugs, food, trash, and just about anything! So today each student will become researchers so they can learn exactly what researchers do.

To continue motivation for discussion, have students work cooperatively in groups to complete an Inquiry Chart (See Resources) identifying the various job roles of a researcher. (i.e. locate appropriate information, interpret information, compare/contrast record findings, share their found information orally or in a written form, etc.) After each group has completed their Inquiry Chart, ask them to brainstorm jobs that require research skills. Jobs might include: teacher, doctors, police, scientist, etc. Ask groups to write down the jobs at the bottom of the Inquiry Chart and present to the class.

Initiate a discussion about which fruits and vegetables students like best. Explain to students that they will be conducting research on local or Texas grown fruits and vegetables (depending on the season). Ask students to work in pairs as they rotate to each station researching their assigned fruit or vegetable. If possible, have different varieties of Texas fruits and vegetables at each station. Each station has materials needed to research their fruit or vegetable that include:

Measuring Station: Record size using rulers, tape measurers
Weighing Station: Record weight using scales
Magnifying Station: Record color and texture using magnifying glasses
Tasting Station: Record smell, taste, and to draw.
* Students must go to three previous stations before returning to their desks to smell, taste, and draw.

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Hand each student a copy of the page titled "Texas Fruit and Vegetable Research Journal" found in the Resource section. Review how students are to record information as you demonstrate how to rotate to each station. Designate about 4-5 minutes and use a signal, such as a bell, to signal students to move to the next station in a clockwise fashion. Ask students to stand with their partner and divide the couples among the three stations. Now hand each pair a fruit or vegetable and announce to begin researching. Float around each of the stations assisting as needed, reminding students to record their data.

For the last station, students will go back to their desk to draw their fruit or vegetable, and record the smell and taste. (Be sure to wash all fruits and vegetables before they are eaten.) Allow students to share their results.

Teacher-to-Teacher Notes

Before this lesson you might schedule a field trip to the Texas A & M Citrus Center, a plant nursery, etc. If possible, you may find literature or videos on a variety of careers, especially in the field of science and research.

To schedule your class for a visit, contact the Work-Based Experiences Specialist at the office of Tech Prep of the Rio Grande Valley, Inc. in Harlingen, Texas at (956) 364-4548.

If a trip is not possible, invite personnel to speak to your students about Agriculture Science research. Ask that the speaker bring examples of journals, charts, etc. completed during a recent project.

Printed copies of free agricultural publications may be ordered at http://texaserc.tamu.edu or obtained by writing:

Texas A & M University-Kingsville Citrus Center
312 N. International Blvd.
Weslaco, Texas 78596

Available websites for free materials:

www.tamuk.edu
www.applytexas.org
www.primera.tamu.edu

Objective

The student is expected to describe the different job roles of a researcher. The student is expected to plan and conduct simple descriptive investigations. The student is expected to promote reasonable conclusions on research conducted on various fruits or vegetables.

Materials

Variety of fruits and vegetables from Texas
Books or videos on Texas citrus and vegetables
Several magnifying glasses
Several rulers and tape measurers
Several scales (kitchen or bathroom)
Napkins
Markers
Bell
Copies of "Texas Fruits and Vegetable Research Journal"

Technology Utilization

Internet (if desired)

SE - Course

SC 112.4: 2.2 (A) (B) (D) (E) (F), 2.4 (A), 2.3 (A) (B)

SE - Cross Curricular

SS 113.4: 2.18 (A) (B), 2.17 (B) (E)
Math 111.14: 2.7 (A), 2.9 (A) (B), 2.13 (A)

TAAS

RE 2: 3.12 (E), 5:3.9 (F)
WR 1:4.15 (C)

TAAS II/TAKS

RE 3:3.9 (I)
WR 1: 4.15 (B)(C)
SC 1:5.2 (A)(B)(C)(D)(E)

Check for Understanding

Monitoring of student work in progress. Assisting students with proper use of materials, recording accurately, etc.

Assessment

Assess the student Research Journal for completion, accuracy, and creativity. Have students individually explain their findings.

Learning Styles

Concrete Sequential
Abstract Sequential
Concrete Random

Multiple Intelligences

Intrapersonal
Verbal/Linguistic
Visual/Spatial

Thinking Skills

Basic

Accommodations

Adapted Assignments
Assistive Technology/Materials
Instructional Support

Extensions

Depth and Rigor
Complexity

Resource Pages

"Inquiry Chart" Page
"Texas Fruit and Vegetable Research Journal" Page

INQUIRY CHART

What do we know about Researchers?	What do we want to learn about Researchers?

What are some questions that will make us think more about Researchers?

What jobs need research skills?

Texas Fruit and Vegetable Research Journal

Name: _____ **Date:** _____

Shape/Measurement	Weight	Color	Texture	Picture	Smell	Taste

Careers in Action

TEKStar Activity Summary

Lesson Title Poetic Researchers **Time Frame** 45-50 Minutes

Activity Description

1. Have students use information gathered from the previous activity to describe a researcher and his job using a poetry frame.

2. Gear the discussion towards having the students describe how they used their senses (touch, smell, sight, and taste) to research a fruit or vegetable. Review the recorded details that they generated in their journals.. Next, divide students into four groups. Assign each group one of the following questions to discuss, answer, and share with the class. (As the groups share, write keywords on the board.)

    1. Why do we need researchers? (To solve problems, discover new things)
    2. What kinds of jobs need researchers? (Just about all)
    3. What kinds of tools do researchers need? (Magnifying glasses, microscopes, resource books, paper, pencils, video camera, tape recorder)
    4. What are some skills needed to become a researcher? (Good note taker, good senses, descriptive, patient , able to work outside, hard worker, self-motivated, good speaker, accurate)

3. Using what they have just learned, students will construct a poem about researchers using a poetry frame. A poetry frame is a poem that lends itself to being adapted and expanded by children. These poems can be adapted for any unit. Tell students that they may use some words listed on the board but to think of other, creative words when writing their poems. For example:

Researcher here, researcher there!
Researchers, researchers everywhere!
Smart researchers studying,
Frowning researchers cleaning,
Scared researchers searching,
And cold researchers covering.
Researchers in the desert,
Researchers in the seas,
Researchers in the forest,
And researchers in the trees.
Researchers! Researchers! Researchers!

4. Hand each student the "Researchers" poetry frame found in the Resources section.

5. Students may draw a picture to accompany their poem. Allow students to share their poems. Individual poems can be typed and bound together to create a class book. Copies of poems may be sent to any speaker for this unit.

Teacher-to-Teacher Notes

Before beginning the activity, model for your students by using a poem frame about a different career. Emphasize to students the importance of using descriptive words from their Inquiry Chart and Texas Fruit and Vegetable Research Journal when completing their Researchers poetry frame. (See Resources) Remind students to be creative and to use their imagination. Once the poems are in book form, the teacher may want to share it with other students through the school library.

Suggested websites:

www.tamuk.edu
www.applytexas.org.
primera.tamu.edu

Texas A&M Citrus Center
P.O. Box 1150

Objective

The student is expected to communicate the characteristics of a researcher through the completion of a " Researchers" poetry frame. (See Resources)

Materials

Optional: Chart with a sample poetry frame completed for "Researchers."
Copy of poetry frame for each student.

Technology Utilization

Computer or typewriter for completing a class book of poems (optional).

SE - Course

SC 2.2 (C)(E)(F)

SE - Cross Curricular

ELA 110.4: 2.1(C), 2.14(D)
SS 113.4: 2.18 (B)

TAAS

RE 2: 3.7 (B), 3.9 (C)(F)
WR 1: 4.15 (C)(D)(F)

TAAS II/TAKS

RE 1:3.9 (H), 3:3.9 (I), 3.11 (C)
WR 1:4.15 (A)(D)

Check for Understanding

Monitoring of student work in progress, oral participation, and student conferencing if necessary.

Assessment

Assess student's completed individual Researcher poetry frame for creativity and the inclusion of concepts learned.

Learning Styles

Concrete Sequential
Abstract Sequential
Concrete Random

Multiple Intelligences

Verbal Linguistic
Logical/ Mathematical
Visual/ Spatial

Thinking Skills

Engaged

Accommodations

Adapted Assignments
Assistive Technology/Materials
Instructional Support

Extensions

Depth and Rigor
Performance Options

Resource Pages

"Researchers" poetry frame

Researchers

Researcher here, researcher there!

Researchers, researchers, everywhere!

_____ researchers _____ ,

_____ researchers _____ ,

_____ researchers _____,

_____ researchers _____ ,

And _____ researchers _____ .

Researchers in the _____ ,

Researchers in the _____ ,

Researchers in the _____ ,

And researchers in the _____ ,

Researchers! Researchers! Researchers!

Careers in Action — TEKStar Activity Summary

Lesson Title Our Texas Garden: Plant It/Sell It **Time Frame** 10 Days/ 20-30 Minutes

Activity Description

1. Now that students have tested and researched a variety of fruits and vegetables, they are expected to work in cooperative groups to organize, plan, and create their own growing garden.

2. They will organize necessary "garden" job roles and relate them to Agriculture Science and Technology careers.

3. Students will research which fruits or vegetables will grow during a particular season, and create a garden at school.

4. The teacher may ask an agriculture researcher, nursery person, landscape architect, or knowledgeable person about plants to visit the classroom. The teacher will give the expert visitor some sample questions to discuss. The students will have an opportunity to ask questions about planting their garden.

5. Students will record data in a daily/weekly Research Science Journal.

6. Culminating activity: Have students pretend that they are the Marketing Department of a large produce company. They must create a commercial in which they try to sell their product to their fellow classmates. If possible, videotape student groups relating why they feel their fruits or vegetables will look and taste better than another cooperative group.

Teacher-to-Teacher Notes

Relate to students that creating a section in the class garden will be the responsibility of each group. They need to work together cooperatively to make it a success. Ask appropriate school personnel for an area students can use for a garden. (A container garden can be assigned if an area for gardening is not available.) Have students ask parents for help in gathering additional information on creating gardens from a variety of sources such as newspapers, magazines, T.V.s, or the Internet. (The teacher could also plan a time in the library for students to research information on gardening.)

Relate to students the importance of being honest when conducting and reporting research to their fellow students, boss, supervisor, or the general public.

Have cooperative groups share the job responsibilities of creating a commercial to sell their produce. (Writer, illustrator, speaker, producer, etc.) Note: This lesson will become a class project extending over several weeks with the culminating activity being to create commercials to sell their produce.

Emphasize to students the importance of working together in real life work settings much like researchers must. Have students keep in mind the importance of being factual but creative when trying to sell products to consumers. Talk about the difference between fact and opinion.

Suggested websites:
www.tamuk.edu
www.applytexas.org
primera.tamu.edu

Objective

The student is expected to apply prior knowledge to create a fruit or vegetable garden and participate in a commercial to sell their produce.

Materials

Fruit and vegetable seeds or seedlings
Cooperative group chart with student assigned jobs (optional)
Paper or notebook for Research Science Journal
Paper, markers, colors to create commercial
Water
Soil

Technology Utilization

Video camera and camera (optional)
Computer-Internet (if available)

SE - Course

SC 112.4: 2.1 (A), 2.2 (A)(B)(D)(E)(F)

SE - Cross Curricular

ELA 110.4:2.3 (C), 2.12 (G)(H)

TAAS

RE 2: 3.9 (F)

TAAS II/TAKS

SC 1: 5.2 (A)(B)(C)(D)(E), 2:3.8 (B), 2.9 (A)(B)
WR 1:4.15 (A)(C)
RE 1:3.7 (B), 3.9 (H), 3:3.9 (I)

Check for Understanding

Monitor student work in progress and conduct student conferencing when needed.
Monitor student participation in cooperative groups.

Assessment

Assess students' understanding of the concepts learned through observing their participation in creating the class garden, commercial, and the accuracy of data information in their Research Journal. Peer evaluations of assigned duties in cooperative groups can also be used for assessment.

Learning Styles

Concrete Sequential
Abstract Sequential
Concrete Random

Multiple Intelligences

Intrapersonal
Verbal / Linguistic
Body/Kinesthetic

Thinking Skills

Dynamic

Accommodations

Adapted Tests
Adapted Assignments
Assistive Technology/Materials
Instructional Support

Extensions

Complexity

Resource Pages

None