

Unit 5: Living Things and Their Young

Content Area: **Science**
Course(s): **Science Gr 1**
Time Period: **AprMay**
Length: **6 Weeks Grade 1**
Status: **Published**

Title Section

Department of Curriculum and Instruction



Belleville Public Schools

Curriculum Guide

Science: Grade 1

Unit 5: Living Things and Their Young

Belleville Board of Education

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Board Approved: August 30, 2017

Unit Overview

Kids are born scientists. They want to know WHY: Is the sun a star? How do magnets work? It's our job to encourage their curiosity, creativity, and exploration while preparing them for careers in science, technology, engineering, and math.

Unit 5 Performance Expectations:

LS1-2 Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Throughout Unit 5, students will develop skills to

- compare young plants with parent plants.
- observe patterns to explain how plants of the same kind are alike and different.
- compare young animals with parent animals.
- observe patterns to explain how animals of the same kind are alike and different.
- describe how plants and animals respond to their environments to meet their needs.
- describe how behavior patterns of parents and offspring help offspring survive.

Unit Vocabulary: parent, offspring, trait, behavior

Unit Project: Compare Animals

Lesson 1:

In Lesson 1, students focus on the similarities and differences between adult plants and their young. They will investigate these phenomena by classifying plants based on shared traits. Students will discuss how the transfer of traits from parent plants to their young results in plants that look alike. Students will observe, illustrate, and discuss variation among plants of the same kind. During a hands-on activity, students will make observations about how plants of the same kind grow to construct evidence.

Essential Question: How do plants look like their parents?

Can You Explain It? (Lesson 1 Engagement Question): How can you tell if two plants are the same kind of plant?

Hands-On Activity: Grow Carrot Tops

Lesson 2:

In Lesson 2, students focus on the similarities and differences between animals and their offspring. They will explore how animals change as they grow and observe patterns in these changes. Students will compare parts of young animals and their parents through a hands-on activity. They will compare and contrast coverings of young and adult animals and explore variations among animals of the same kind.

Essential Question: How do animals look like their parents?

Can You Solve It? (Lesson 2 Engagement Question): You see a young animal. You want to find an adult animal that is of the same kind. What should you look for?

Hands-On Activity: Observe Brine Shrimp

Lesson 3:

In Lesson 3, students focus on patterns in behavior of parents and offspring that help them survive. Students will explore how animals take care of their young. They will describe behavioral patterns of parents and offspring that help offspring get food and discover how animals teach their offspring to get food and stay safe.

Essential Question: How do animals take care of their young?

Can You Explain It? (Lesson 3 Engagement Question): How do animals help their young survive?

Online Interactive Activity: Watch Us Grow

Enduring Understanding

Unit 5 Performance Task: Students will obtain information from books to make picture cards about animals and their young. They will describe patterns that explain how parents and their offspring are alike and different.

(Refer to Scoring Rubric TE page 271)

By the end of Lesson 1, students will make observations to explain the differences and similarities between plant parents and their offspring.

By the end of Lesson 2, students will make observations to explain the differences and similarities between animal parents and their offspring.

By the end of Lesson 3, students will determine patterns in how animal parents and offspring behave in ways that help the offspring survive.

Assessments

Pre-Assessment

Assessment Guide, Unit Pretest

Formative Assessment

Interactive Worktext, Apply What You Know, Lesson Check and Self Check

Summative Assessment

Assessment Guide, Interactive Worktext, Lesson Quiz and Unit Test

Online Assessment

Essential Questions

Essential Questions for Unit 5 Project:

Students can be prepared for their Unit 5 Project by asking the following questions:

- Where do animals live in the wild?

- Where do we find animals living with people?
- What evidence can be collected to show how animals take care of their young?
- Do you think there is a difference in how animals take care of their young depending on their environment?

Essential Questions:

- How do plants look like their parents?
- How can you tell if two plants are the same kind of plant?
- How do animals look like their parents?
- You see a young animal. You want to find an adult animal that is of the same kind. What should you look for?
- How do animals take care of their young?
- How do animals help their young survive?

Exit Skills

By the end of Grade 1, Science Unit 5, the students should be able to:

- describe how plants of the same kind are alike and different

- effectively explain how patterns can be used as evidence to answer the question
- tell how animals of the same kind can be alike and different
- effectively explain how they can observe patterns to tell if two animals are the same kind
- describe patterns of how animal parents take care of their young
- explain how this helps young animals survive
- use evidence to explain their answers

New Jersey Student Learning Standards (NJSLS-S)

| | |
|-------------|---|
| SCI.1-LS1-2 | Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. |
| SCI.1-LS3-1 | Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. |

Interdisciplinary Connections

Lesson 1:

Connections to Math

1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.

1.MD.A.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps

or overlaps.

Connections to English Language Arts

W.1.7 Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions).

Lesson 2:

Connections to Math

MP.5 Use appropriate tools strategically.

1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.

Connections to English Language Arts

RI.1.1 Ask and answer questions about key details in a text.

W.1.7 Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions).

Lesson 3:

Connections to Math

1.NBT.B.3 Compare two two-digit numbers based on the meanings of the tens and one digits, recording the results of comparisons

with the symbols $>$, $=$, and $<$.

1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

Connections to English Language Arts

RI.1.1 Ask and answer questions about key details in a text.

W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

| | |
|--------------|---|
| LA.W.1.7 | Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). |
| LA.W.1.8 | With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. |
| LA.RI.1.1 | Ask and answer questions about key details in a text. |
| MA.1.MD.A.1 | Order three objects by length; compare the lengths of two objects indirectly by using a third object. |
| MA.1.MD.A.2 | Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. |
| MA.1.NBT.B.3 | Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$. |
| MA.1.NBT.C.5 | Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. |
| MA.K-12.5 | Use appropriate tools strategically. |

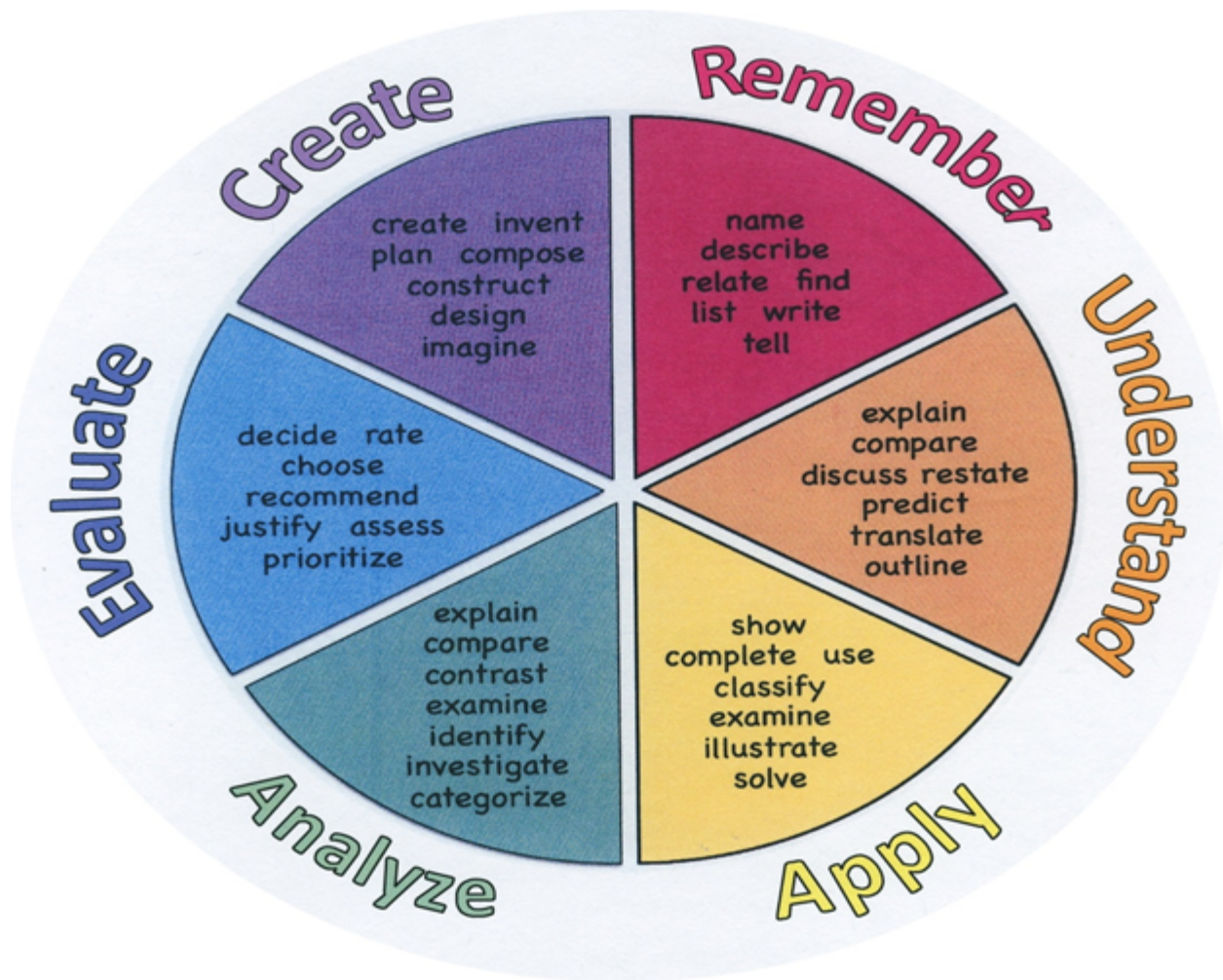
Learning Objectives

Effective Learning Objectives Used in Lesson Planning:

- SWDAT make observations to explain the differences and similarities between plant parents and their offspring
- SWDAT grow two carrot plants from carrot tops, record their observations, compare the plants, and look for patterns
- SWDAT make a claim and support the claim by using evidence gathered from their observations
- SWDAT make observations to explain the differences and similarities between animal parents and their offspring
- SWDAT explore how brine shrimp hatch and change as they grow into adults
- SWDAT observe the shrimp over time and record information about their body features
- SWDAT compare and contrast the adult shrimp and use this information to construct evidence
- SWDAT determine patterns in how animal parents and offspring behave in ways that help the offspring survive
- SWDAT gather information on how polar bears and lions teach their young to find food and stay safe and use this information to construct evidence about how animals are alike and different

Action Verbs: Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy.

| Remember | Understand | Apply | Analyze | Evaluate | Create |
|-----------------|-------------------|--------------|----------------|-----------------|---------------|
| Choose | Classify | Choose | Categorize | Appraise | Combine |
| Describe | Defend | Dramatize | Classify | Judge | Compose |
| Define | Demonstrate | Explain | Compare | Criticize | Construct |
| Label | Distinguish | Generalize | Differentiate | Defend | Design |
| List | Explain | Judge | Distinguish | Compare | Develop |
| Locate | Express | Organize | Identify | Assess | Formulate |
| Match | Extend | Paint | Infer | Conclude | Hypothesize |
| Memorize | Give Examples | Prepare | Point out | Contrast | Invent |
| Name | Illustrate | Produce | Select | Critique | Make |
| Omit | Indicate | Select | Subdivide | Determine | Originate |
| Recite | Interrelate | Show | Survey | Grade | Organize |
| Select | Interpret | Sketch | Arrange | Justify | Plan |
| State | Infer | Solve | Breakdown | Measure | Produce |
| Count | Match | Use | Combine | Rank | Role Play |
| Draw | Paraphrase | Add | Detect | Rate | Drive |
| Outline | Represent | Calculate | Diagram | Support | Devise |
| Point | Restate | Change | Discriminate | Test | Generate |
| Quote | Rewrite | Classify | Illustrate | | Integrate |
| Recall | Select | Complete | Outline | | Prescribe |
| Recognize | Show | Compute | Point out | | Propose |
| Repeat | Summarize | Discover | Separate | | Reconstruct |
| Reproduce | Tell | Divide | | | Revise |
| | Translate | Examine | | | Rewrite |
| | Associate | Graph | | | Transform |
| | Compute | Interpolate | | | |
| | Convert | Manipulate | | | |
| | Discuss | Modify | | | |
| | Estimate | Operate | | | |
| | Extrapolate | Subtract | | | |
| | Generalize | | | | |
| | Predict | | | | |



Suggested Activities

Vocabulary Game- Guess the Word

Hands-On Activities: Grow Carrot Tops, Observe Brine Shrimp, & Compare How Animals Learn

Interactive Activity: Watch Us Grow

Unit Project

Take It Further

- Watch a Pumpkin Grow
- The Butterfly Life Cycle
- Pet Investigation
- On Their Own

Evidence of Student Learning - Checking for Understanding (CFU)

In addition to the assessments provided with the Houghton Mifflin Harcourt Science Series, teachers may use different formative and informative assessments to guide their instruction. Below is a checklist of possible assessment strategies to be used to check for understanding in Science.

- Admit Tickets
- Anticipation Guide
- Common benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments

- Socratic Seminar
- Study Guide
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit tests

Primary Resources & Materials

HMH Science Dimensions Text

Professional Development Video

Equipment Kits (includes consumable and non-consumable materials)

Safety Kit

The Science and Engineering Practices Online Handbook

Science and Engineering Leveled Readers (On Level, Extra Support, Enrichment)

HMH Player app

Home Letters (Online)

Ancillary Resources

Safety in Science Rules

Online Resources

Technology Infusion

www.hmhco.com/classroom/classroom-solutions/digital-and-mobile-learning/ed

3D Evaluation Rubric

Computer-Based Assessments

HMH Field Trips

Online Videos and Animations

Online access to Science and Engineering Leveled Readers (includes On Level, Extra Support, and Enrichment)

Online Glossary

Originally taken from <http://www.coetail.com/vzimmer/files/2013/02/IPadagogy-Wheel.001.jpg>
And adapted for Windows 8.1 devices by Charlotte Beckhurst @CharBeckhurst

Wikipedia
Skydrive
Lync
SkyMap
Skype
Office 365
Puzzle Touch
Easy QR
Memorylage
Life Moments
Word Cloud Maker

Ted Talks
Record Voice Pen



Alignment to 21st Century Skills & Technology

- English Language Arts; Communication and Collaboration
- Mathematics; Critical Thinking and Problem Solving
- Science and Scientific Inquiry (Next Generation); Critical Thinking and Problem Solving
- Social Studies, including American History, World History, Geography, Government and Civics, and Economics; Information Literacy
- World languages; Information Literacy
- Technology; Life and Career Skills
- Visual and Performing Arts; Creativity and Innovation

21st Century/Interdisciplinary Themes

Connection to Engineering Design: Developing Possible Solutions

Lead a discussion about the different kinds of fruit people pick from plants. For each fruit, guide students to identify a plant trait that could cause a problem in picking the fruit. In groups, have students discuss and draw a possible solution to one of the problems discussed.

Connection to Earth and Space Sciences: Patterns

Discuss other patterns in nature.

Connection to Earth and Space Sciences: Patterns

Challenge students to describe other patterns they have observed in nature.

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

21st Century Skills

Collaboration

- Build on Prior Knowledge
- Small Groups
- Jigsaw
- Think, Make, Pair, Share
- Think, Write, Pair, Share

Claims, Evidence, and Reasoning

People in Science & Engineering (Gregor Mendel)

Careers in Science & Engineering (Zookeeper)

- Communication and Collaboration

- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

Differentiation

Lesson Vocabulary (trait, parent, offspring)

Leveled Readers (On Level, Extra Support, Enrichment)

Reinforce Vocabulary- To help students remember the vocabulary words; ask them to make a poster of animal parents and offspring.

RTI/Extra Support- Provide additional opportunity for hands-on discovery. Have students design their own seed envelopes for seeds they collect.

Extension- Research on how some traits are more helpful for a plant to live, grow, or make new plants.

ELL- Point out labels, pictures, captions, and headings throughout the lesson. Discuss real-life connections to content, and provide hands-on examples of materials when possible.

(ELL support resources include a glossary in English and Leveled Readers in Spanish and English)

Differentiations:

- Small group instruction
- Small group assignments
- Extra time to complete assignments
- Pairing oral instruction with visuals
- Repeat directions
- Use manipulatives
- Center-based instruction
- Token economy
- Study guides
- Teacher reads assessments allowed
- Scheduled breaks
- Rephrase written directions
- Multisensory approaches
- Additional time
- Preview vocabulary
- Preview content & concepts
- Story guides
- Behavior management plan
- Highlight text
- Student(s) work with assigned partner
- Visual presentation
- Assistive technology
- Auditory presentations
- Large print edition
- Dictation to scribe
- Small group setting

Hi-Prep Differentiations:

- Alternative formative and summative assessments
- Choice boards
- Games and tournaments
- Group investigations
- Guided Reading
- Independent research and projects
- Interest groups
- Learning contracts
- Leveled rubrics
- Literature circles
- Multiple intelligence options
- Multiple texts
- Personal agendas
- Project-based learning
- Problem-based learning
- Stations/centers
- Think-Tac-Toes
- Tiered activities/assignments
- Tiered products

- Varying organizers for instructions

Lo-Prep Differentiations

- Choice of books or activities
- Cubing activities
- Exploration by interest
- Flexible grouping
- Goal setting with students
- Jigsaw
- Mini workshops to re-teach or extend skills
- Open-ended activities
- Think-Pair-Share
- Reading buddies
- Varied journal prompts
- Varied supplemental materials

Intervention Strategies

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of work presented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify

Special Education Learning

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multiple test sessions
- multi-sensory presentation
- preferential seating
- preview of content, concepts, and vocabulary
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes

English Language Learning

- teaching key aspects of a topic. Eliminate nonessential information
- using videos, illustrations, pictures, and drawings to explain or clarify
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of work presented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test

- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

Sample Lesson

Unit Name: Living Things and Their Young

NGSS: 1-LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Interdisciplinary Connection: Art (drawings of plants)

Statement of Objective: SWDAT make observations to explain the differences and similarities between plant patterns and their offspring

Anticipatory Set/Do Now: Show lesson video; After the watching the video, have students record their thoughts about how the two plants are alike and different; discuss and list answers on chart paper

Learning Activity: Show students several photographs or cards of plants with prominent features (allow viewing by one student at a time). Students will work in small groups to describe to their partners the plant photograph or card for them to draw. Encourage the students drawing to ask clarifying questions as they draw (e.g. "Are the leaves pointy or round?") Discuss as a class to show results of how their drawings look alike and different. Read aloud pages 220-223; ask guided questions.

Student Assessment/CFU's: Complete "Apply What You Know" in Evidence Notebook; Students will circle the parts on the parent tree that are different from the parts on the young tree.

Materials: Lesson video, laptop, SMART TV or SMART Board, text book, photographs or cards of plants with prominent features, drawing paper, pencils, crayons, chart paper

21st Century Themes and Skills: Communication and Collaboration, Creativity and Innovation

Differentiation/Modifications: Lesson video, visuals (chart and photographs/cards), small group assistance

Integration of Technology: Lesson video; explore online to find out more about how young plants may be different than their parent plants