Science Anchors

Science anchors are ongoing engaging tasks that students can work on independently. They are curriculum based, clearly defined and differentiated for students. Students can work on science anchors as they complete work at varying rates, when the teacher is working with a small groups of students, at the beginning or end of a class period, or when they are waiting for teacher assistance. Sample science anchor tasks include: reading and responding to text, journaling, learning or interest centers, listening or viewing centers, independent research or projects and hands-on minds-on science kit tasks.

Overview

The science anchor tasks in this resource support the MCPS Grade 6 Diversity and Adaptations unit. Provide a variety of anchor tasks at your anchor station to address the diverse learning styles and needs of your students.

<table>
<thead>
<tr>
<th>Anchor Task</th>
<th>Topics</th>
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</thead>
<tbody>
<tr>
<td>1-Animal Classification Review Game</td>
<td>Classification</td>
</tr>
<tr>
<td>2-Create a Dichotomous Key</td>
<td>Classification</td>
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<tr>
<td>3-Adaptation Rap or Song</td>
<td>Adaptation</td>
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<tr>
<td>4-Adaptation Poster Project</td>
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<tr>
<td>5-Best Suited Animal</td>
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<tr>
<td>6-Extinct Species Timeline</td>
<td>Populations, Adaptation, Survival</td>
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<tr>
<td>7-Research a Native Species</td>
<td>Survival</td>
</tr>
<tr>
<td>8-Real Issues Debate</td>
<td>Populations</td>
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</tbody>
</table>
## Possible Anchor Tasks

Prentice Hall *Bacteria to Plants All-in One Teaching Resources:*

<table>
<thead>
<tr>
<th>Task</th>
<th>Topics</th>
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</thead>
<tbody>
<tr>
<td>Classifying Organisms-Guided Reading and Study pp. 56-59</td>
<td>Classification</td>
</tr>
<tr>
<td>How Many Species of Animals Are There?-Enrich p. 62</td>
<td>Populations, Kingdom Animalia</td>
</tr>
<tr>
<td>Living Mysteries-Skills Lab pp. 63-65</td>
<td>Classification, Kingdom Plantae, Dichotomous Key</td>
</tr>
<tr>
<td>Domains and Kingdoms-Guided Reading and Study pp. 67-70</td>
<td>Classification</td>
</tr>
<tr>
<td>A New Phylum-Enrich p. 71</td>
<td>Classification, Kingdom Animalia</td>
</tr>
<tr>
<td>The Origin of Life-Guided Reading and Study pp. 73-76</td>
<td>Evolution</td>
</tr>
<tr>
<td>Is This Life?-Enrich p. 78</td>
<td>Fossils</td>
</tr>
<tr>
<td>Developing a Classification System for Seeds-Laboratory Investigation pp. 82-84</td>
<td>Classification, Kingdom Plantae</td>
</tr>
<tr>
<td>Classifying Cerealites-Performance Assessment</td>
<td>Classification</td>
</tr>
<tr>
<td>Be a Disease Detective-Performance Assessment pp. 100-106</td>
<td>Classification, Kingdom Eubacteria</td>
</tr>
<tr>
<td>Bacteria-Guided Reading and Study pp. 118-121</td>
<td>Kingdom Eubacteria</td>
</tr>
<tr>
<td>Identifying Bacteria-Enrich p. 123</td>
<td>Classification, Kingdom Eubacteria</td>
</tr>
<tr>
<td>Comparing Disinfectants-Consumer Lab pp. 124-126</td>
<td>Kingdom Eubacteria</td>
</tr>
<tr>
<td>Bacteria That Dine on Vegetables-Laboratory Investigation pp. 136-141</td>
<td>Kingdom Eubacteria</td>
</tr>
<tr>
<td>What Are Viruses and Bacteria?-Performance Assessment pp. 142-144 (modify to What Is Bacteria?)</td>
<td>Classification, Kingdom Eubacteria</td>
</tr>
<tr>
<td>A Mushroom Farm-Chapter Project pp. 156-162</td>
<td>Kingdom Fungi</td>
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</tbody>
</table>
GRADE 6DAA ANCHOR STATION

Possible Anchor Tasks

Prentice Hall *Bacteria to Plants All-in One Teaching Resources*: continued

<table>
<thead>
<tr>
<th>Task</th>
<th>Concepts</th>
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<tbody>
<tr>
<td>Fungi – <em>Guided Reading and Study</em> pp.180-183</td>
<td>Classification, Kingdom Fungi</td>
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<tr>
<td>Fungi-<em>Review and Reinforce</em> p.184</td>
<td>Kingdom Fungi</td>
</tr>
<tr>
<td>A Really Big Fungus-<em>Enrich</em> p.185</td>
<td>Classification, Kingdom Fungi</td>
</tr>
<tr>
<td>Modeling Protists-<em>Performance Assessment</em></td>
<td>Kingdom Protista</td>
</tr>
</tbody>
</table>

Prentice Hall *From Bacteria to Plants Guided Reading and Study Workbook:*

<table>
<thead>
<tr>
<th>Task</th>
<th>Topics</th>
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<tbody>
<tr>
<td>Classifying Organisms-<em>Guided Reading and Study</em> pp.13-15</td>
<td>Classification</td>
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<tr>
<td>Domains and Kingdoms-<em>Guided Reading and Study</em> pp.17-18</td>
<td>Classification</td>
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<tr>
<td>The Origin of Life-<em>Guided Reading and Study</em> p.19-21</td>
<td>Evolution</td>
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</table>
**Possible Anchor Tasks**

**Prentice Hall *Animals All-in One Teaching Resources***

<table>
<thead>
<tr>
<th>Task</th>
<th>Topics</th>
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</thead>
<tbody>
<tr>
<td>Rushing to Eat - <em>Enrich</em> p. 52</td>
<td>Adaptation</td>
</tr>
<tr>
<td>Describing Mollusk Shells - <em>Enrich</em> p. 118</td>
<td>Classification</td>
</tr>
<tr>
<td>The Arthropod Evolutionary Tree - <em>Enrich</em> p. 128</td>
<td>Evolution</td>
</tr>
<tr>
<td>Warning Flares and Adaptation False Colors - <em>Enrich</em> p. 134</td>
<td>Adaptation</td>
</tr>
<tr>
<td>Sea Lilies - <em>Enrich</em> p. 149</td>
<td>Classification</td>
</tr>
<tr>
<td>Characteristics of Sea Stars - <em>Laboratory Investigation</em> pp. 153-158</td>
<td>Adaptation</td>
</tr>
<tr>
<td>Imprint Inquiry - <em>Performance Assessment</em> p. 161</td>
<td>Classification</td>
</tr>
<tr>
<td>Similar but Different - <em>Enrich</em> p. 187</td>
<td>Classification</td>
</tr>
<tr>
<td>Soaking Up Those Rays - <em>Skills Lab</em> p. 188</td>
<td>Adaptation</td>
</tr>
<tr>
<td>Depth Adjustment by Fishes - <em>Enrich</em> p. 196</td>
<td>Adaptation, Classification</td>
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</tbody>
</table>

**Prentice Hall *Animals Guided Reading and Study Workbook***

<table>
<thead>
<tr>
<th>Task</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>What Is an Animal? - <em>Guided Reading and Study</em> pp. 9-12</td>
<td>Classification, Adaptation, Kingdom Animalia</td>
</tr>
</tbody>
</table>
## Possible Anchor Tasks

### Prentice Hall *Environmental Science All-in One Teaching Resources:*

<table>
<thead>
<tr>
<th>Task</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classifying the Great Apes pp.5-6</td>
<td>Classification</td>
</tr>
<tr>
<td>Bat Adaptations p.7</td>
<td>Adaptation</td>
</tr>
<tr>
<td>The Aye-Aye pp.14-15</td>
<td>Survival</td>
</tr>
<tr>
<td>Organisms and Continental Drift-Enrich p.126</td>
<td>Populations, Fossils</td>
</tr>
<tr>
<td>Future Population Growth-Enrich p.181</td>
<td>Populations</td>
</tr>
<tr>
<td>Endangered Species-Enrich p.200</td>
<td>Survival</td>
</tr>
<tr>
<td>Endangered Animal Species-Performance Assessment pp.214-216</td>
<td>Survival</td>
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</table>

### Prentice Hall *Environmental Science Guided Reading and Study Workbook:*

<table>
<thead>
<tr>
<th>Task</th>
<th>Topics</th>
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<tbody>
<tr>
<td>Studying Populations-Guided Reading and Study pp.13-14</td>
<td>Populations</td>
</tr>
<tr>
<td>Interactions Among Living Things-Guided Reading and Study pp.15-16</td>
<td>Populations</td>
</tr>
<tr>
<td>Biodiversity-Guided Reading and Study pp.41-43</td>
<td>Populations, Survival</td>
</tr>
</tbody>
</table>
Animal Classification Review Game

Anchor Task 1

Overview
This anchor task is to be used by students that need support after learning about classification in Lesson Sequence 1 Session 3 of the MCPS Grade 6 Diversity and Adaptations instructional guide.

Goals

Students should know
organisms have similarities and differences.

Students should understand
observable features can be used to classify organisms.

Students should be able to
use information to classify mammals, reptiles, birds, amphibians, and insects.

Required Resources

- Access to Animal Classification game at link below:
  
  http://www.teachersdomain.org/asset/lsps07_int_animalclass/
Create a Dichotomous Key

Anchor Task 2

Overview

This anchor task is to be used by students as they are learning about dichotomous keys in Lesson Sequence 1 Session 13 of the MCPS Grade 6 Diversity and Adaptations instructional guide.

Goals

_Students should know_
- organisms have similarities and differences.

_Students should understand_
- observable features can be used to classify organisms.

_Students should be able to_
- develop a dichotomous key to identify different organisms.

Required Resources

- Access to Dichotomous Key activity at link below:
  
Adaptation Rap or Song
Anchor Task 3

Overview
This anchor task is to be used by students as they are learning about adaptations in Lesson Sequence 3 Sessions 1-5 in the MCPS Grade 6 Diversity and Adaptations instructional guide.

Goals

Students should know
some organisms have a better chance of surviving than others.

Students should understand
adaptations help organisms and groups of organisms survive.

Students should be able to
communicate how an organism’s adaptations help it survive.

Engage:
Show and discuss the adaptation rap at the link below. The lyrics are provided on the next page.

http://www.youtube.com/watch?v=YX8VQIIpTg

Required Resources

• Adaptation rap video segment
• One Adaptation Rap or Song resource per student
• Music selections provided by teacher or students
• Computer(s) or audio player with headphones
• Blank paper
• Optional– Music composition paper

Extend
Have students make a music video.
Camel Adaptation Song Lyrics

Chorus: Adapt Adap-ta-tion changes in the body to fit a location X2

Big pads on my feet
Better traction than a jeep
And another on my chest
So I can rest
On the sizzle and sands that fry like pan
I’m crossing the Sahara in my caravan

I’m the legendary dromedary
Four hundred pounds on my back in the desert I carry
Nothing to drink until the next oasis
Water is fresh so we never waste it

Chorus

Not a drop of rain it’s arid extra dry
But I never get a grain of sand in my eye
If the wind blows gyro sand tornadoes
I’ve got better lids kids than J. Lo
Long and thick with a double lash
Close ‘em fast built to last

continued
And the hump on my back
Got an extra tank
Like a savings bank packed with fat
The hump on my back is packed with fat X3
I won’t say it again cause you know all that

Thick lips eat sticks and bones
Thorns and shrubs that others leave alone
Sometimes sip for the salty rind because the H2O
Is hard to find

My shaggy fur insulates
My body temps regulate
So I don’t sweat and dehydrate
Live another day to procreate

Chorus

Repeat Chorus
Adaptation Rap or Song
Anchor Task 3

Directions
Work with your group to choose your music, write your lyrics, and prepare your performance.

Your group will perform for the class on______________________________.

Work as a group to answer the questions below.

1. Will your group write a rap or another type of song?

2. Will your group generate its own music or re-write the lyrics to an existing song?

3. How will your group work together to produce a rap or song?

Extend:
Make a music video for your rap or song. An example of an adaptation rap can be viewed at the link below:

http://www.youtube.com/watch?v=YX8VQIIVpTg
Overview

This anchor task is to be used by students as they are exploring animal adaptations in Lesson Sequence 3 Sessions 1-5 in the MCPS Grade 6 Diversity and Adaptations instructional guide.

Goals

*Students should know*

some organisms have a better chance of surviving than others.

*Students should understand*

adaptations help organisms survive.

*Students should be able to*

illustrate how four organisms’ adaptations help them survive.

Resources:

- One Adaptation Poster Project resource per student
- One Adaptation Poster Project Rubric per student
- Poster paper
- Markers and colored pencils

Extend

Have students illustrate different adaptations for all four organisms or encourage students to include organisms other than animals.
Adaptation Poster Project

Anchor Task 4

Directions
Select a life function to research.

Identify different adaptations four organisms use to help them carry out the life function.

1.

2.

3.

4.

Make a poster that illustrates the adaptations four different organisms use to carry out the life function. The adaptations you illustrate must be different for at least two out of the four organisms. Underline the adaptations you will illustrate and get teacher approval before you begin your poster.

Teacher Approval:_______________________________

Escape From Predators Example:

1. **Red-eyed Tree Frog**—camouflage on green leaves during the day, **flash coloration to distract predators**, climbing to escape from predators

2. **Broad-headed Skinks**—flash coloration to attract predators to tail, lose tail to escape from predators, grow a new tail

3. **Box turtle**—hard shell that closes (shell too hard for many predators to eat)

4. **Wood mouse**—good hearing and vision senses to assess if situations are risky, **seek shelter to hide from predators**
## Adaptation Poster Project Rubric

**Anchor Task 4**

<table>
<thead>
<tr>
<th>Research and Planning</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>Identifies 4 different adaptations four organisms use to carry out the same life function</td>
<td>Identifies 3 different adaptations four organisms use to carry out the same life function</td>
<td>Identifies 2 different adaptations four organisms use to carry out the same life function</td>
<td>Identifies 1 adaptation four organisms use to carry out the same life function</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illustrates and accurately describes 4 different adaptations used by four different organisms to carry out the life function</td>
<td>Illustrates and accurately describes 3 different adaptations used by four different organisms to carry out the life function</td>
<td>Illustrates and accurately describes 2 different adaptations used by four different organisms to carry out the life function</td>
<td>Illustrates and accurately describes 1 adaptation used by four different organisms to carry out the life function</td>
<td></td>
</tr>
</tbody>
</table>
Best Suited Animal

Anchor Task 5

Overview

This anchor task is to be used by students as they are learning about adaptation and survival in Lesson Sequence 3 Sessions 1-8 of the MCPS Grade 6 Diversity and Adaptations instructional guide.

Goals

Students should know

some organisms have a better chance of surviving than others.

Students should understand

best-suited organisms and groups of organisms survive.

some organisms survive and reproduce and others die or migrate to other locations when the environment changes.

Students should be able to

create the best suited animal for an environment.

Required Resources

- Access to Best Suited Animal task at link below:
  
  http://coolschool.ca/TC2/TC2_projects/projects/TC2_09.htm
Extinct Species Timeline
Anchor Task 6

Overview
This anchor task is to be used by students as they are learning about populations in Lesson Sequence 2 Session 1 and adaptation and survival in Lesson Sequence 3 Sessions 1-8 of the MCPS Grade 6 Diversity and Adaptations instructional guide.

Goals

*Students should know*
- changes in the environment can be harmful or helpful.
- some organisms have a better chance of surviving than others.

*Students should understand*
- some organisms survive and reproduce and others die or migrate to other locations when the environment changes.

*Students should be able to*
- develop a timeline that reflects the life span of an extinct species.

Required Resources
- One Extinct Species Timeline resource per student
- Colored pencils or markers
- Blank paper
- Lined paper
- Optional—Computers for students to develop electronic timelines
Extinct Species Timeline
Anchor Task 6

Directions
Select an extinct species to research. ____________________________

Get teacher approval.
Teacher Signature:________________________________________________

Document the entire life span of the species on the next page.

Use poster paper or software to create a timeline that reflects the life span of the species you researched. Be sure to include descriptions of the major influences that impacted the stability of the species.

The Carolina parakeet native to Maryland became extinct in the 1920’s.

Image source http://www.lib.fit.edu/pubs/librarydisplays/Carolina_parakeet.jpg
GRADE 6DAA ANCHOR STATION

The Life of ______________________ From Beginning to End
Maryland Native Species Research

Anchor Task 7

Overview
This anchor task is to be used by students as they are learning about survival in Lesson Sequence 3 Sessions 6-8 in the MCPS Grade 6 Diversity and Adaptations instructional guide.

Goals

Students should know
some organisms have a better chance of surviving than others.

Students should understand
best-suited organisms and groups of organisms survive.

some organisms survive and reproduce and others die or migrate to other locations when the environment changes.

Students should be able to
explain how a native Maryland species survives throughout the year.

Resources:
- One Maryland Native Species resource per student
- Various print and electronic resources
- Access to The Maryland Department of Natural Resources website at the link below:
  http://www.dnr.state.md.us/wildlife/wildacres.asp
Maryland Native Species Research

Anchor Task 7

Directions

Select a Maryland native species to research. You can use the Maryland Department of Natural Resources website at the link below to help you.

http://www.dnr.state.md.us/wildlife/wildacres.asp

Species:_________________________________________

Research the species that you selected. Write a paragraph to explain how your species survives throughout the year.

____________________________________________________________________________
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Eastern Screech Owl
Photo by Tom Darden

http://www.dnr.state.md.us/wildlife/waowls.asp
GRADE 6DAA ANCHOR STATION

Real Issue Debates

Anchor Task 8

Overview

This anchor task is to be used by students as they are preparing for the real issue debate in the Lesson Sequence 6 Session 1 in the MCPS Grade 6 Diversity and Adaptations instructional guide.

Goals

Students should know

various factors influence the size and stability of populations.

Students should understand

how those factors influence the size and stabilities of populations.

Students should be able to

research a global problem.

analyze and summarize data to identify trends and form a logical argument about a cause and effect relationship or a sequence of events.

support an argument with evidence.

Engage:

Show and discuss the CNN video segment at the link below:


The video includes interviews of ranchers and environmentalists expressing their opinions about the gray wolf’s endangered status. Click “off the endangered list” on the right side of the page to access the video.

An additional video on the gray wolf can be accessed on the CBS website at the link below:

http://www.cbsnews.com/video/watch/?id=3067925n%3fsource=search_video

Resources:

- Variety of electronic and print resources
- One Debating Real Issues Record Sheet resource page per student
- One class chart (see sample chart on teacher resource page) with sticky notes
Debating Real Issues Record Sheet
Anchor Task 8

You will research the issue from the perspective of a:

_______rancher who has lost animals to the gray wolf

_______ecologist who supports the protection of the gray wolf

Research the Issue

• Gather information from at least three resources.
• Record ideas that support your assigned perspective.
• Post your ideas on the class chart.
• Be prepared to use your ideas to argue the issue from your perspective.
• Participate in our class debate on______________________________.

The Issue

In 1973, the federal government listed the gray wolf as endangered because its population dropped to a few hundred in Minnesota and nearly zero in the other continental 48 states. This protected the gray wolves from hunting and trapping. In addition, captive breeding released more gray wolves into the wild. In 1998, the number of gray wolves rose to approximately 2,380 wolves in Minnesota and Wisconsin. Today, the gray wolf population in Minnesota, Wisconsin, and Michigan is approximately 3,980. Due to the steady increase in the gray wolf’s population some believe that it is now safe to remove the species from the endangered list. Others support keeping the gray wolf protected. This decades long debate continues.
Debating Real Issues Class Chart
Anchor Task 8
Teacher Resource Page

Consensus Reached

Issue

Ranchers

Ecologists
Suggested Resources

CBS Interactive Inc. bBNet:  Top 10 Reasons to Support Rancher Compensation - gray wolf program

http://findarticles.com/p/articles/mi_m0ASV/is_/ai_55315090

CNN:  Gray Wolf: Still Endangered?


CNN:  Gray Wolf Returns to Endangered Species List


Defenders of Wildlife:  Gray Wolf


The Humane Society:  Gray Wolf

http://www.hsus.org/wildlife/a_closer_look_at_wildlife/gray_wolf/

Minnesota Public Radio: Farmers and Ranchers Upset with Wolf Ruling

http://minnesota.publicradio.org/display/web/2008/10/06/wolves_reax/

National Geographic:  Thriving Gray Wolf May Come Off U.S. Endangered List


National Wildlife Federation:  Gray Wolf and the Endangered Species Act

http://www.nwf.org/endangered/graywolf.cfm

USA Today:  Gray Wolf to be Taken Off Endangered Species List


Washington Post:  New Debate on Wolf's 'Endangered' Label

http://www.washingtonpost.com/wp-dyn/content/article/2008/10/24/AR2008102402024.html
Please write each of your facts below.

1. ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

2. ____________________________________________________________
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3. ____________________________________________________________
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8. ____________________________________________________________
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9. ____________________________________________________________
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GRADE 6 DAA ANCHOR STATION

TEACHER FEEDBACK

School _________________________________ Date _________________

Feedback about this document will be helpful to the Division of Accelerated and Enriched Instruction as new anchors are developed. Please complete this feedback form and return it to Kristi Cameron in the Division of Accelerated and Enriched Instruction, CESC Room 177.

Please indicate your feedback on the effectiveness by checking the appropriate box.

<table>
<thead>
<tr>
<th>Effectiveness Indicator</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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<tbody>
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<tr>
<td><strong>Comments:</strong></td>
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<tr>
<td>2. The suggested anchor tasks promote access and opportunities for all students.</td>
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<td><strong>Comments:</strong></td>
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<td>3. The anchor tasks support the MCPS science curriculum.</td>
<td>□</td>
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<tr>
<td><strong>Comments:</strong> Provide an example of an task that worked well and one that could be improved.</td>
<td>□</td>
<td>□</td>
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Additional Comments: