

## Planning Commentary

Respond to the prompts below (**no more than 9 single-spaced pages, including prompts**).

### 1. Central Focus

- a. Describe the central focus and purpose for the content you will teach in this learning segment.

The central focus of this learning strand is identifying and understanding the relationship between living organisms and their environment. More specifically students will learn how the adaptations of Monarch Butterflies are interrelated with abiotic and biotic factors in the Monarch's environment. An organism's adaptations and how they are related to environmental factors are unifying concepts in the study of life science. These concepts will be explored further and in more depth in all life science courses students take throughout middle school, high school and in college.

Monarch Butterflies are a native insect most people are familiar with by sight if not by name. By using a familiar living organism most students have seen in their day to day life, students may be more interested in this learning strand and the concepts may seem less abstract and more concrete. Students will be able to generalize what they learn in this learning strand and utilize this information in the future when studying these concepts in greater depth.

- b. Given the central focus, describe how the standards and learning objectives within your learning segment address the use of science concepts and the ability to apply scientific practices through inquiry to develop evidence-based explanations for a real-world phenomenon.

The standards and learning objectives within this learning segment focus on students conducting research, presenting information, collecting data, organizing data, analyzing data, collaborating with peers, discussion with peers and making inferences based on research and data. All of these objectives mirror what professional scientists do in the course of their work. Scientists must conduct research, collect and analyze data, make inferences, and collaborate with their peers. In addition, students will be using many parts of the Scientific Method, a unifying concept for all sciences, to investigate factors that affect Monarch Butterflies and their migration phenomenon. With their newly acquired knowledge, students will apply it to develop hypotheses and explanations related to factors and adaptations that affect Monarch Butterfly migration.

- c. Explain how your plans build on each other to help young adolescents **understand relationships** between scientific concepts, scientific practices, and the phenomenon in the learning segment.

The lesson activities in this learning strand are based on the Scientific Method and provide scaffolding for students to develop foundational knowledge concerning biotic and abiotic factors, adaptations, simple lifecycles and migrations. In lesson one the students will begin by learning key vocabulary terms. Following the vocabulary lesson, students will work in groups to conduct research to build their foundational knowledge about factors and adaptations that pertain to monarch butterflies and their migration phenomenon. In lesson two students will review key vocabulary terms and then share

their research findings to further strengthen and develop the whole class' understanding Monarch Butterflies as well as factors and adaptations that affect them. In lesson three students collect organize and analyze data pertaining to Monarch Butterfly migration and are then asked to make inferences based on their knowledge of Monarchs in addition to factors and adaptations that affect them.

- d. Explain how you will help young adolescents make interdisciplinary or integrative connections between the central focus of the learning segment and other subject areas.

Science in a cross curricular subject and the study of science often requires the learner to cross into the subjects of social studies, reading, language arts and math. In this learning strand students will use their reading skills while conducting research. Students will also be required to write about their findings and give a presentation which crosses into language arts. In the third lesson students will be collecting and analyzing data which will require them to use math skills.

## 2. Knowledge of Students to Inform Teaching

For each of the prompts below (2a–b), describe what you know about **your** students with respect to the central focus of the learning segment.

Consider the variety of young adolescent learners in your class who may require different strategies/support (e.g., students with IEPs, English language learners, struggling readers, underperforming students or those with gaps in academic knowledge, and/or gifted students).

- a. Prior learning, prerequisite skills, and understanding of the nature of science related to the central focus—What do young adolescents know, what can they do, and what are they learning to do?

At the beginning of the school year my cooperating teacher taught all students in each grade about the scientific method to prepare them for the science fair that all students in the school are required to participate in. While many students had been unfamiliar with the scientific method previous to this class they all received instruction as to what it was and how to use it. To reinforce what they had learned my cooperating teacher has many posters and other visual aids about the scientific method hanging on the classroom walls for the students to refer to as needed.

I was also informed by my cooperating teacher that at the neighborhood K-5 school, where most of my students had previously attended, teachers use the commercially available butterfly rearing kits to expose children to simple life cycles. Students that had attended the neighborhood K-5 school should have some basic background knowledge of butterflies and their lifecycle.

- b. Personal/cultural/community assets related to the central focus—**What do you know about your students' everyday experiences, cultural backgrounds and practices, and interests?**

This neighborhood school is located in a blue collar neighborhood in Chicago. Students at the school were predominantly Hispanic but there were Middle Eastern and Caucasian students as well. Approximately 90% of the students were considered low

income and 27% were classified as “Limited English.” Many of the students spoke English as a second language though an exact percentage was not available to me.

- c. Young adolescent developmental assets related to the central focus— **What do you know about your students’ cognitive, physical, and social and emotional development?**

Students in my focus class came from a school that focused on “teaching to the test” in preparation to the ISAT so they had little exposure to science. Compounding this, at the time my students were in the K-5 building teachers were not required to use specific curriculums so what students learned and how they learned it was highly dependent on what teacher they had. Looking at the students MAP and ISAT scores I was able to ascertain that about half my focus class was reading below grade level. I also knew that in my focus class many of my students spoke English as a second language. While all of my students spoke English fluently I was unsure how many understood academic English as opposed to conversational English. Since science requires a very specific academic vocabulary students may struggle to comprehend what they hear or what they read in class. I was informed that students did not have much exposure to group work for an extended period of time so they may lack the social skills necessary to work cohesively as a group.

### 3. Supporting Students’ Science Learning

Respond to prompts 3a–c below. As needed, refer to the instructional materials and lesson plans you have included to support your explanations. **Use principles from research and/or theory to support your explanations, where appropriate.**

- a. Explain how your understanding of your students’ prior academic learning and personal/cultural/community assets (from prompts 2a–b above) guided your choice or adaptation of learning tasks and materials.

In the article Supporting English-Language Learners and Struggling Readers in Content Literacy With the “Partner Reading and Content, Too” Routine written by Donna Ogle and Amy Correa-Kovtun, several strategies were described to help struggling readers and ESL students comprehend written text. According to Ogle and Correa-Kovtun (2010) one important strategy was to give students reading material “that was at their instructional and independent level.” (p. 533) Two other strategies described included “students being given the opportunity to talk and use academic vocabulary and discourse” in addition to giving students “the opportunity to share their points of view help other students clarify ideas and deepen their understanding.” (Ogle and Correa-Kovtun, 2010, p.533) Knowing that almost half of my class are struggling readers as well as having many ESL students I will make several adaptations to my lessons and the materials provided in my lessons to support all learners.

One of the main adaptations I made based on the suggestions in the article by Ogle and Correa-Kovtun, is that I will provide research material that is accessible to all students. The majority of the research material I have chosen is below grade level but still scientifically accurate and comprehensive. I will also provide picture books as part of the research material so struggling readers, ESL students and visual learners will be able to use the visuals to better comprehend and understand what they were learning. There

are some students in my class that read far above grade level so I will include some articles that are at level or slightly above level to accommodate those students' abilities. Finally, all students will have access to their textbooks and the classroom library which has books that will meet the needs of all students in my class.

In addition, I have made group work an essential part of this learning strand. Working with peers is a strategy suggested in the article Supporting English-Language Learners and Struggling Readers in Content Literacy With the "Partner Reading and Content, Too" Routine to help students that struggle to read comprehend what they are reading and learning on a deeper level. Working in a group will give students the ongoing opportunity to discuss what they are learning in order to help them clarify concepts as well as to use academic vocabulary. In addition to providing support for struggling readers and ESL students I believe the ability to work and collaborate with others is an essential skill in science because scientific research and discoveries are typically the result of extensive collaboration and team work.

- b. Describe and justify why your instructional strategies and planned supports are appropriate for **the whole class and students with similar or specific learning needs**.

Consider students with IEPs, English language learners, struggling readers, underperforming students or those with gaps in academic knowledge, and/or gifted students.

Group work will be a part of every lesson and is an appropriate whole class support. Working in groups will primarily provide support for students who read below grade level and speak English as a second language but it also provides support to all students. When students have the opportunity to discuss new information they can develop and clarify their understanding of those new concepts. Furthermore, given the number of students who speak English as a second language and are bilingual, I feel group work will be a good planned support for this because students who might not understand something in English will be able to ask a peer for clarification in Spanish.

Another planned support for my class will be the research materials available to them. These research materials will support all students by addressing the needs of struggling readers as well as those who read at or above grade level. I will provide articles that are at or above grade level as well as provide articles and books that are below grade level but are scientifically accurate and comprehensive. In addition to the provided articles and books students will have access to their textbook and the classroom library which contains books at and above grade level on topics such as lifecycles, adaptations and environmental factors.

Instructional strategies will also address the needs of all learners. For example, one instructional strategy I will use through this learning stand is when introducing new vocabulary terms I will speak, write and draw or show a visual that goes with the words being taught. This will help students who are struggling readers or ESL students to better comprehend and understand what is being taught. However, this practice is not only just beneficial to struggling readers and ESL students; seeing, hearing and drawing new vocabulary terms helps all students comprehend and retain new information

- c. Describe common preconceptions, errors, or misunderstandings within your content focus and how you will address them.

Many people do not know that Monarch Butterflies migrate between North America to Mexico. To address this, one group will be assigned to research and present on Monarch migration. Another common misconception regarding migration is that many people believe when an animal migrates it just goes where ever it wants. This is inaccurate as animals migrate using very specific routes to and from very specific geographic locations year after year. To address the common misconception that animals migrate whenever and wherever they want, concise and comprehensive research material will be provided for one group to read and later present to the rest of the class.

Ogle, D., & Correa-Kovtun, A. (2010). Supporting english-language learners and struggling readers in content literacy with the "partner reading and content, too" routine. *Reading Teacher*, 63(7), 532-542.

#### 4. Supporting Science Development through Language

- a. **Language Demand: Language Function.** From the list below, choose **one** language function essential for young adolescent learning within your central focus:

Analyze	Explain	Interpret	Justify with evidence
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- a. Identify a key learning task from your plans that provides students with opportunities to practice using the language function. In which lesson does the learning task occur? (Give lesson/day number.)

One key learning task that provides students the opportunity to interpret what they are reading occurs in Lesson One. This lesson focuses on the acquisition of key vocabulary terms as well as reading and interpreting research material provided to them.

- b. **Additional Language Demands.** Given the language function and task identified above, describe the following associated language demands (written or oral) young adolescents need to understand and/or use.
  - Vocabulary and/or symbols
  - Vocabulary – Students need to acquire and use specific vocabulary words related to the study of Monarch Butterflies, environmental factors, migration and adaptations of living organisms. In this learning strand students will be required to complete a written outline and a poster which requires the use of accurate scientific vocabulary.
  - Plus** at least one of the following:
    - Syntax
    - Discourse - One component of this learning strand is that students will give a presentation to the rest of the class. Students have little to no experience giving presentations to the class. So this will be a new experience for many of them. This presentation requires students to be able to communicate ideas clearly using accurate scientific vocabulary. In addition, discussions occur as part of some lessons and this also requires students to be able to verbally communicate with their peers.

Consider the range of young adolescents' understandings of the language function and other demands what do students already know, what are they struggling with, and/or what is new to them?

- c. **Language Supports.** Refer to your lesson plans and instructional materials as needed in your response to the prompt below.

Describe the instructional supports (during and/or prior to the learning task) that help young adolescents understand and successfully use the language function and additional language identified in prompts 4a–c.

Essential vocabulary words will be taught or reviewed daily throughout this learning strand. These words will be presented on the overhead or through a PowerPoint slideshow. Words are to be written out, defined both verbally and in writing and visuals that pertain to the key vocabulary terms will be used to help students understand and define the words. Students will copy these words into their science journal or will be provided a hand out so they can refer to the definitions of the words as needed. In addition, placing students in mixed ability groups allows the students to discuss their findings within their groups and have an opportunity to use key scientific vocabulary terms in discussion. The group discussion will help students interpret and process what they read and learn.

## 5. Monitoring Student Learning

Refer to the assessments you will submit as part of the materials for Task 1.

- a. Describe how your planned formal and informal assessments will provide direct evidence of young adolescents' understanding of science concepts and the phenomenon, nature of science, and use of scientific practices throughout the learning segment.

Pre-assessment and Final Assessment – I will use the same assessment as a pre-assessment and a summative assessment. The pre-assessment will allow me to determine what students know or don't know about Monarch Butterflies and factors that affect them. After this learning segment is done I will use the same assessment to see what and how much students have learned.

Informal Assessments- During all three lessons I will use informal assessment to see if my students understand what is being taught. By walking around the classroom and spot checking students from each group I will be able to quickly determine if my students are demonstrating the skills and knowledge I would like them to be able to demonstrate at that point in the learning strand. When I give the final assessment I will also assign students to respond to prompts in writing that will require them to draw conclusions or make inferences based on what they have learned over the lesson strand. These responses will not be graded but they will allow me to assess how well students have synthesized the information learned and how well they are able to develop conclusions or make inferences.

Formal Assessment – Students will be graded on several items during this learning strand. They will be graded on their research outline, the ability to work as a group, their

group presentation and the poster they create for their presentation. To assess students in these areas I will develop and use rubrics. By assessing each group's outline and their presentation with a rubric I will be able to determine what level of understanding they have on their specific topic that relates to Monarch Butterflies and the factors and adaptations that affect them.

- b. Explain how the design or adaptation of your planned assessments allow young adolescents with specific needs to demonstrate their learning.

Consider all students, including students with IEPs, English language learners, struggling readers, underperforming students or those with gaps in academic knowledge, and/or gifted students.

The pre and final assessment are short but comprehensive multiple choice assessments. This limits the reading required as well as the answer choices. This type of assessment will benefit students who struggle to read and ESL students. Informal assessment will occur during group work so students have the opportunity to ask their peers questions and discuss possible answers prior to writing them down. Again, this type of assessment is beneficial to students who do not read well or are ESL students. Formal assessments will be derived from group work such as the outline, presentation and poster. As with the informal assessments students who struggle to read or speak English as a second language will have the opportunity to ask for clarification or input from peers. The presentation and poster will not exclusively grade students on written work and allows students to demonstrate their learning verbally and artistically. The presentation and poster will be produced as a group so learners who struggle to read or speak English as a second language will have the opportunity to consult with peers for clarification or advice. All students will be able to do well on these tasks if they follow the specified directions.