

Exploring! Amazing Monarch Butterflies
Design Document

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Course Link: [Exploring! Amazing Monarch Butterflies](#)

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Course Overview

Monarch butterflies are a part of daily life in Waukegan, Illinois during the spring, summer, and early fall months. Waukegan is located in the butterfly’s breeding habitat, and the annual mass migration of Monarch butterflies passes through Waukegan. Monarch butterflies are precious to the community and celebrated at the annual Monarch Festival, which is dominated by children’s activities. The purpose of the course *Exploring! Amazing Monarch Butterflies* is to provide children ages 7-10 with an optional online opportunity for learning about the science of the Monarch butterfly’s life cycle, habitat, and annual migration from as far north as Canada to the mountain forests of Mexico, and back again. Students taking this course will also learn about the declining Monarch butterfly population, threats to survival, and what they can do to help Monarch butterflies survive. The course is designed especially for children who live in the Waukegan Public Library’s service area, which includes a sizable population of families who live at or near the poverty level. Most children do not have computers at home, and it is anticipated that the majority of students will access this course at the library or school. This course, *Exploring! Amazing Monarch Butterflies*, is wholly optional and is not instructor-led. It may be used as a pre- or post-visit activity for children who attend the annual Waukegan Monarch Festival, by homeschoolers, and as a classroom activity.

Learning Objectives

The course learning objectives serve the purpose of achieving the course goal of teaching children about the science of the Monarch butterfly life cycle, habitat, mass migration, threats to survival and conservation.

Morrison et al. (2011) wrote “The specification of instructional objectives plays a key role in the procedure for systematically planning instruction” (p.128). After completing this course, learners will be able to:

1. Describe in sequence from egg to butterfly the four stages of the life cycle.
2. Identify essential components of Monarch butterfly summer habitat.
3. Describe annual migration in terms of seasonal change.

4. Describe threats to Monarch butterfly survival in terms of habitat requirements.
5. Plan a butterfly garden by selecting plants that support Monarch butterfly life.

Content

Subject: Monarch Butterfly

Topics:

Life Cycle

Four stages of the life-cycle

Habitat

Summer habitat: elements and requirements

Winter habitat: location and requirements

Mass Migration

Purpose of migration

Migration route

Threats

Threats to Monarch butterfly survival in terms of loss of habitat

Conservation

How individuals can help Monarch butterflies

Instructional Design

Exploring! Monarch Butterflies course is arranged in units. Each unit takes from fifteen to thirty minutes to complete online, and includes one or two journaling activities that may be completed away from the course. Each unit also contains suggested activities such as starting a blog, creating a word cloud, and creating a Pinterest Board. Although the content is interconnected, students who already know some of the content and/or want to learn just one part of the course can access individual units

This course is designed from the top-down or by using backwards design. I began with the instructional goal, formed the learning objectives, and then created assessments that measure learners' achievement of the objectives. I next crafted lessons and learning activities around learning objectives and core content using a wide variety of types and format of content. Finally, instructional characters were designed to present different kinds of information.

William Horton (2006) said that effective instruction requires three kinds of activities: *Absorb* activities in which learners receive content, *Do* activities in which learners do something with what they've learned, and *Connect* activities, that require learners to connect learning to real world experiences. I have noted the kind of activity, Absorb, Do, or Connect, following the explanation of the activity.

Course Stages

Course Beginnings: Prepare and Test Course

1. Outline course structure.
2. Create course “guide” and “instructor” characters. Instructional characters provide learners with a visual representation of the virtual instructor and may help learners to think of the instructors as “real people”.
3. Select content materials and group by topic and sub-topic.
4. Prepare and record audio and video teaching materials.
5. Prepare assessments.
6. Set up the course in the LMS.
 - a. Test the course in the LMS and check functionality.
 - b. Have the course beta-tested by students age 7-10.
 - c. Fine-tune course as indicated by results of beta test.
7. Test-launch course in LMS
 - a. Gather feedback from student testers, teachers, and library personnel.
 - b. Refine and revise course in accordance with feedback

Course Beginnings: Learner Experience

1. Learner meets the course “guide” who introduces the course. The guide communicates via voice recording and addresses students as “explorers”.

This strategy helps the learner actively engage with the course guide and content by adopting the role of “explorer”. Heath & Heath (2007) wrote “Generative metaphors and proverbs both derive their power from a clever substitution: they substitute something easy to think about for something difficult” (p. 60). By adopting the role of explorer rather than student, the learner may enjoy the course more and be open to having fun.

2. The guide introduces the other instructional character, Professor Knowsalot, and his friend Amelia, the Monarch butterfly. Professor Knowsalot is a cartoon character who delivers the text instruction.
3. The guide directs the student to explore the course structure, navigation, and content.
4. Learner completes a tour of the course on their own.
5. Learner completes a self-assessment exercise to activate prior knowledge.
6. Learner completes the first module and assessments. The assessments contain prompts for correct answers, incorrect, and partially correct. When the student achieves less than 100% correct on an assessment s/he is directed to a review. Students who achieve 100% on assessments are encouraged to complete more activities in the unit's "Discovery Door".
7. At the conclusion of the module, learners are given guided reflection questions and directed to write their response in their Monarch butterfly journal.
8. Units 2 & 3: continue the same strategies as Unit 1.
9. Course conclusion: Guided reflection activity.

Core Learning Principles

The following core learning principles are quoted from *The Online Teaching Survival Guide*. (Boettcher, 2010)

“Every Structured Learning Experience has Four Elements with the Learner at the Center” (p.21).

This course places the learner at center stage, where under the guidance of the instructor, s/he encounters learning content. Learning takes place in the environment where the learner, working alone or possibly with a parent, friend, or sibling coaching, accesses the course: in most cases, this will be at the library or in a classroom, while some may use a home computer.

“Every Learner Has a Zone of Proximal Development That Defines the Space That a Learner is Ready to Develop Into Useful Knowledge” (p. 30).

Learners in this course will complete assessments as they work through each module. Coaching will be provided for incorrect answers via comments and redirection to review material. Learners can decide for themselves if they need to review and/or are ready to move to the next topic. They may also choose different and more difficult activities in from the Discovery

Door. This self-assessment process makes learners aware of the knowledge they possess and their readiness to learn more.

“All Learners Do Not Need to Learn All Course Content; All Learners Do Need to Learn the Core Concepts” (p. 26).

The course contains a variety of learning materials in various formats grouped by core concepts and principles, application, and problem analysis and solving. Learners will be able to customize their learning by choosing learning materials.

“Concepts are not words but organized and interconnected knowledge clusters” (p. 31).

Learners will be asked to keep a journal and through prompts and guided reflection, they will be asked to make connections between course content, personal experience, and actual happenings in the world.

“Learners bring their own personalized and customized knowledge, skills, and attitudes to the experience” (p.23).

Before jumping into the course, learners will complete a self-assessment activity. This activity has serves a three-fold purpose: to get the learner used to using the course, to activate prior knowledge, and to give the him/her an idea of what s/he knows in relation to the new content s/he will encounter in the course. In many of the Journal activities, learners are asked to connect what they have learned to their own experiences.

“Everything Else Being Equal, More Time on Task Equals More Learning” (p. 33).

Learners will encounter the same content in various forms as they progress through the course. External websites where learners can explore more content I support the content presented in the course. Learning activities build on prior knowledge in such a way that learners actually experience the content again but from a new perspective.

Best Practices for Online Learning

(Note: Exploring! Amazing Monarch Butterflies is an asynchronous, individual course. It does not take place within a “community of learners”, and therefore cannot make use of collaboration, group discussions, contact with instructor, informal feedback at start of course, and synchronous activities.)

The following best practices are quoted from *The Online Teaching Survival Guide*. (Boettcher, 2010)

“Be present at the course site” (p. 37).

Because this is not an instructor-led course, the online instructor will be “present” at the course site by means of the guide, who communicates in voice recordings, and the instructional character, Professor Knowsalot. The voice recordings may help to give learners the impression that the instructor is present and talking to them personally.

“Search out and use content resources that are available in digital format, if possible” (p. 37).

Learning resources will be housed within the course shell in digital format. Links to content outside of the LMS will be included as well. The course contains videos, slide presentations, voice recordings, and websites.

“Combine core concept learning with customized and personalized learning” (p.37).

Learners are able to choose their learning content from groups of materials arranged around core concepts, and experience the course in the order they choose. Discovery Door materials allow learners to customize their learning.

“Plan a good closing and wrap activity for the course” (p.37).

At the end of the course, students are directed to complete a journal activity about what they will do to help Monarch butterflies survive, and asked to think about how they will share what they have learned in the course with parents, friends and classmates. They will be encouraged to follow-up with a pen-pal activity to learn about children’s relationship with Monarch butterflies in Mexico.

“Prepare discussion posts that invite responses, questions, discussions, and reflections” (p.43).

As a course designed for individuals and not groups, discussions are moot: however, I will use guided reflection activities to “encourage critical or creative thinking” (p. 43).

Tools and Technology

1. Audio and video: voice recording by the guide, short slide presentations and illustrative videos: these tools provide ways for learners to connect to and access content by hearing the guide’s voice, watching butterflies, watching a time-lapse video of a butterfly as it progresses through the life cycle, and seeing and hearing real people describe different

experiences. (Absorb) Boettcher and Conrad suggested that these kinds of resources are useful for “creating a media-rich learning environment” (p. 59).

2. Quizzes: the quiz features of the LMS will be used as learning activities and assessments. (Do)
3. Journal: learners will write about what they are learning and connect to real-world experiences in their journal. (Connect) as they are permitted by their parents, students may start a blog and/or participate in one of the Monarch butterfly blogs. Richardson (2010) notes that “blogs archive the learning that teachers and students do, facilitating all sorts of reflection and metacognitive analysis that was previously much more cumbersome” (p. 27).
4. Course management system: the course is housed in a LMS. According to Boettcher and Conrad (2010), “these systems are like virtual classrooms and campuses” (p.59).
5. Survey Tools: Learners will be asked to provide feedback on their course experience via a survey. This information will be used to make design changes as warranted.

Assessment

Learners complete the course as an optional learning activity and are not graded on their work. Self-assessments are used to gauge learners’ achievement of learning objectives and readiness to proceed to the next topic. Examples of the kinds of assessments included in the course are:

1. Matching activities and direction on where to find the information for review. Learners are encouraged to answer all questions correctly before proceeding to the next topic. (Do)
2. Complete the phrase activities: learners complete a phrase by selecting the correct words. Directions are provided for finding the information to review. (Do)
3. Create: students apply what they have learned to choose elements for a habitat or garden. (Do)
4. Place in order: for example, identify and place the stages of the life cycle in the correct order from one to four. (Do)

Exploring! Amazing Monarch Butterflies

Learning Objective	Assessment	Type A absorb D do C connect	
Describe in sequence from egg to butterfly the four stages of the life cycle.	Egg to Butterfly: place in order	D	
	Life Cycle Quiz: choose word or phrase	D	
	Journal: How does it feel?	D, C	
	Life Cycle Discovery Quiz: complete the sentence	D	
Identify essential components of Monarch butterfly summer habitat.	Build a Habitat: choose images	D	
	Journal: Write about habitat	D, C	
	Bees and Butterflies Do This Quiz	D	
	Migration Review Activity: complete the sentence	D	
.	<i>Also:</i> Describe annual migration in terms of seasonal change	Habitat and Migration Quiz: complete the sentence	D
	<i>Also:</i> Describe annual migration in terms of seasonal change.	Journal: You're ready to migrate!	D, C
Describe threats to Monarch butterfly survival in terms of habitat requirements	A Summer Without Butterflies Quiz: choose correct word	D	
	Journal: Threats. Write about threats	D, C	

Exploring! Amazing Monarch Butterflies

		Happy Monarch Butterfly activity: choose images of items that are good for butterflies	D
	Also: Plan a butterfly garden by selecting plants that support Monarch butterfly life	Journal: How I Will help Monarch Butterflies	D
	Plan a butterfly garden by selecting plants that support Monarch butterfly life	Build a Monarch butterfly garden Activity: choose image	D, C

Figure 1. Learning objectives and assessments

References

- Boettcher, J. V.-M. (2010). *The online teaching survival guide: Simple and practical pedagogical tips*. San Francisco: Jossey-Bass.
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