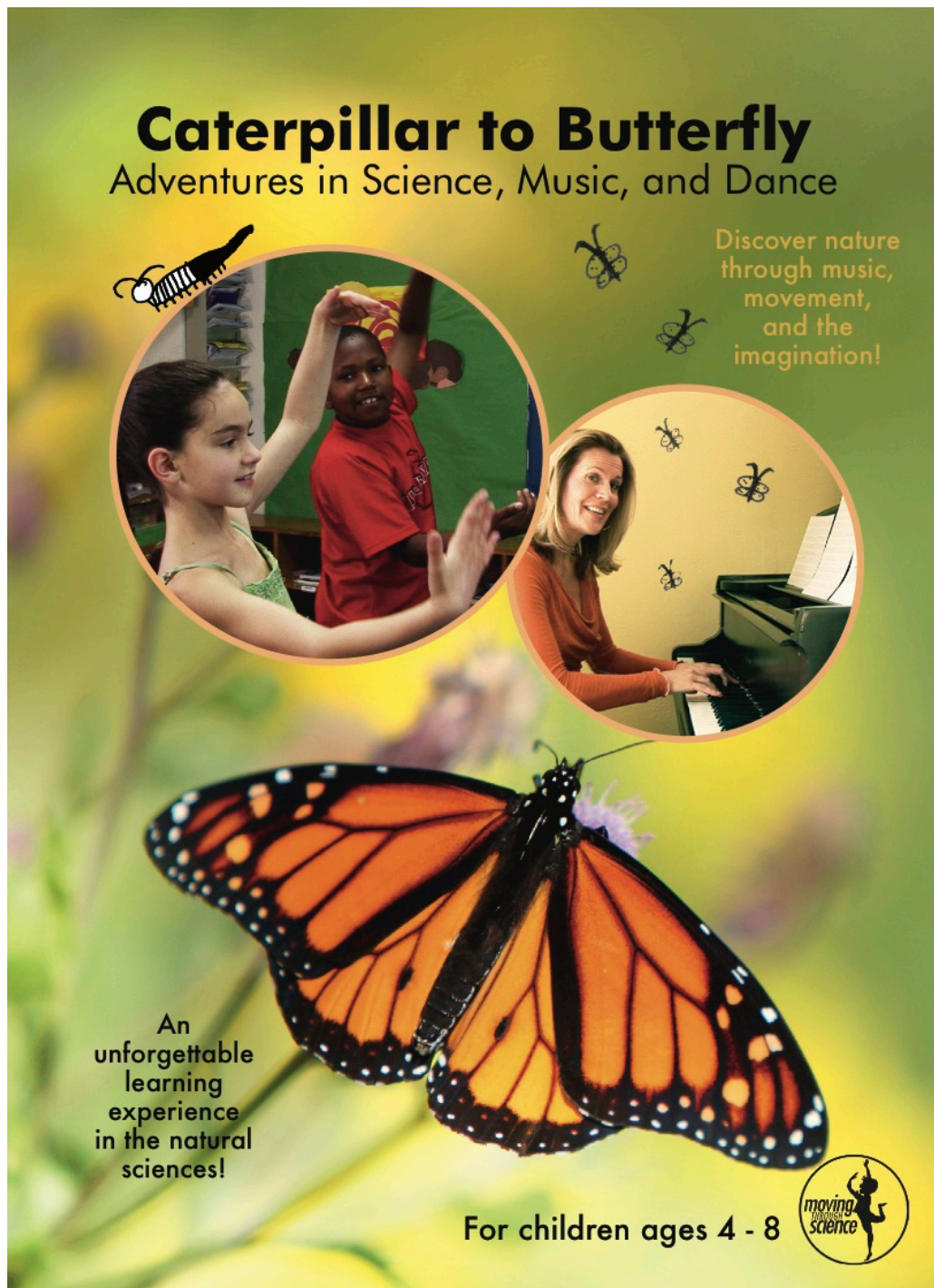


# Caterpillar to Butterfly: Adventures in Science, Music, and Dance

## Planning Guide for Teachers and Parents



## Welcome!

*Moving Through Math* and *Moving Through Science* are educational programs where music, dance, and drama, are integrated with the teaching of academic content. This approach develops critical and creative thinking, and makes learning fun!

## Timing and Facilitation

This video series is broken into 4 Chapters plus the Butterfly Performance. I recommend having children view 1 chapter each day, then following up each daily viewing with a group reflection. If you are able to reflect with your students each day, you can answer questions, clarify misunderstandings, and dig deeper using the provided reflection questions.

If you are teaching remotely, you have two viewing choices:

- 1) Provide students with the link below and instruct children to watch the chapter on their own before your scheduled group reflection.

<https://www.movingthroughmath.com/product/caterpillar-butterfly-streaming/>

- 2) Use the “Screen Share” feature on Zoom (or any other online platform) so that all students who are signed in watch the video together.

## Introduction for Parents and Teachers (5 minutes)

This Introduction is only for the adults who will be facilitating the viewing and learning. If you are not already familiar with Arts Integrated Instruction, you’ll learn about this approach to teaching. You’ll also learn what to watch for as your children progress through the chapters.

## Chapter 1

### Rules for Music and Movement (10 minutes + Reflection)

Chapter 1 sets the expectations for movement-based learning at home or at school. First, adults help set up a clutter-free area and establish it as the **Dance Space**. Second, if children are going to be moving and learning with others, each child learns to stay inside his or her own **Personal Space**. Third, students learn to **Listen and Move** in response to music.

### Reflection Questions

- 1) Why is it important to set up a Dance Space before dancing in our homes or at school? Was it challenging to find an open space to dance in? Did you have to move any furniture? How big or small is your dance space? Did anyone bump into anything? Did anyone trip over anything? Is there anything you can do to make your Dance Space safer?

- 2) Who watched and moved alone? Who watched and moved with other children? If you were moving with others, was there enough room for everyone to have his or her own Personal Space? Did you remember to stay in your own Personal Space? Did anyone forget to stay in their Personal Space and bump someone else by accident? Did anyone get hurt? What can we say to help our friends stay in their own Personal Spaces?
- 3) When you were listening and moving to music, did you remember to stop when the music stopped? Did you remember to start moving again when the music started? Was it easy for you? Why? Was it challenging for you? Why? Why do you think Marcia (the teacher in the video) asks children to practice starting and stopping with the music?

## Chapter 2

### Learning Science, Music, and Movement (25 minutes + Reflection)

Chapter 3 is the main learning chapter. Depending on how quickly your students grasp the science, music, and dance content, you may need to watch this chapter two or three times. In this chapter, the life cycle of the butterfly is broken into 8 steps: Egg, Hatch, Eat, Molt, Hang, Pupate, Chrysalis, and Butterfly. For each step, children watch nature footage to learn the science content, listen to music that interprets the science content, and then learn creative movements that embody the science content.

### Reflection Questions

- 1) What information about the Monarch butterfly did you already know before we watched Chapter 3? What was something new that you learned about butterflies after watching the video? Is there anything about the butterfly life cycle that you are confused about? What are you still curious about? Let's review the 8 steps in the butterfly life cycle:

**EGG:** Who lays the egg? Where does she lay the egg? Why does she lay the egg on a milkweed leaf? Why do you think she lays the egg on the underneath side of the leaf?

**HATCH:** What does "hatch" mean? The larvae hatches out of the egg--does the larvae look more like a caterpillar or a butterfly? What words can you use to describe the larvae? What's the first thing the larvae does after it hatches?

**EAT:** What is the favorite food of Monarch caterpillars? Have you ever seen a leaf on a garden plant, bush, or tree that was eaten by caterpillars? What did that leaf look like? Why do you think a caterpillar eats so much?

**MOLT:** What does “molt” mean? Why does a caterpillar need to molt? Do human children molt when they grow bigger? Why don’t children need to molt when they grow bigger?

**HANG:** How many times does a Monarch caterpillar grow and molt before it’s ready to hang upside down. What does the caterpillar hang from? Why do you think it hangs upside down?

**PUPATE:** What does “pupate” mean? What happens to the caterpillar’s skin when it pupates? What does a “pupa” look like? Why do you think a caterpillar pupates before it can change its body to become a butterfly?

**CHRYsalIS:** What does the chrysalis look like? What is growing inside the chrysalis? What new body parts does the butterfly need to form as it grows inside the chrysalis? What do you imagine the butterfly is thinking or feeling when it’s growing inside the chrysalis? How is a chrysalis like an egg?

**BUTTERFLY:** How does the butterfly get out of the chrysalis? After the butterfly hatches out of the chrysalis, what does it need to do before it can fly? How do you think the butterfly feels when it flies for the first time?

2) What were your favorite parts of the music? Can you describe those parts? Which parts of the music do you think best match what was happening to the caterpillar? How did the musical sounds match what was happening? Which parts of the music were faster? Which parts were slower? Which parts of the music were louder? Which parts were softer/quieter? Which part of the music moved from high to low? Which part of the music moved from low to high? What part of the music sounded like a baby’s lullaby? Why did it sound like a lullaby? What part of the music was exciting and full of energy? Why did it sound exciting and energetic? Can you hum or sing any parts of the music?

3) What were your favorite movements from the butterfly life cycle? Can you show me those moves? Which movements did you think best match what was happening to the caterpillar? How did the movements match what was happening? Which movements were up high in the air (at a high level)? Which movements were down on the floor (at a low level)? Which movements were quick? Which movements were slow? Show me a movement where we used our heads; our arms; our fingers; our legs. Show me a movement where our bodies were tight like a ball. Show me a movement where are bodies were open and wide. Did you follow the dancers in the video or did you create your own moves? Can anyone describe a part of the butterfly life cycle and show us your own moves that match that part?

## Chapter 3

### Listening, Watching, and Moving (10 minutes + Reflection)

In Chapter 3, students dance the complete life cycle of the butterfly – WITHOUT STOPPING! There are still verbal cues along with the music and the video to help students stay on track with the sequence of events. But this is the parent/teacher's opportunity to sit back and assess the learning. This is your opportunity to watch how children move and see if they have internalized the science content. This is your opportunity to see which students recognize the musical cues and match their movements to the music. You can also look to see if any children are creating their own movements to interpret and express the science content.

#### Reflection Questions

- 1) How did you do with remembering each step in the butterfly life cycle? What parts of the life cycle were easy to remember? Why were they easy to remember? What parts of the life cycle were hard to remember? Why were they hard to remember? Are there steps in the butterfly life cycle that you'd like to go back and review again? Is there anything you are still curious about?
- 2) Do you feel like you are dancing with the music? Why or why not? How does dancing make you feel? How would you create your own butterfly life cycle dance? Can you show us your moves and describe how they express what the butterfly is doing?

## Chapter 4

### Drawing Story Maps (15 minutes + 30 minutes for drawing/reflection)

In Chapter 4, students first learn to divide a legal-sized piece of paper into 8 sections. You may need to get adults to help with the paper folding. Then children watch how the butterfly life cycle can be drawn as a story map. It takes 15 minutes to watch the video. Children will need another 30 minutes to work with pencils and paper to draw and share their story maps. I recommend leaving the story map image on the screen for children to copy if they need the support. Some children will follow the model drawing closely. Other students will have the confidence to create their own visual details.

#### Reflection Questions

- 1) How did you do with drawing each step in the butterfly life cycle? Did you remember the order? What parts of the life cycle were easy to draw? Why? What parts of the life cycle were hard to draw? Why? Did you copy the way Marcia (the teacher in the video) drew her picture or did you do something different? Can you show us your picture and explain why you chose to draw it that way? Did anyone draw something special or surprising in their story map?
- 2) Can you touch and describe each picture in your story map as you tell us the story of the Monarch butterfly?



## **SPECIAL BONUS (Rehearsal time + 10-minute performance)**

### **Butterfly Performance**

There are two steps to preparing/rehearsing for the Butterfly Performance.

The 1<sup>st</sup> step is listening to the music. In “Butterfly Performance: Listen to the Music” only the music is provided – there are no images for children to follow. Play the music for children and ask if they are able to recognize the steps of the butterfly life cycle story. Ask children if they can show you movements that match the music.

The 2<sup>nd</sup> step is rehearsing the movements along with the music and the nature footage. In “Butterfly Performance: Perform the Dance” the music and the nature footage are provided – but there are no verbal cues. Play the video for children and see if they are able to perform the entire dance along with the video.

You can share your Butterfly Performance with 1) a live audience, 2) a virtual audience on Zoom (or any other live video sharing platform), or 3) as a recorded video that can be attached and e-mailed, posted on your Facebook page, etc. Play the “Butterfly Performance: Perform the Dance” video on a TV screen or computer monitor, and then position the children to dance in front of the video. This way the audience can watch the children, hear the music, and make connections between the children’s movements and the images they see in the video.

### **Reflection Questions**

- 1) How did it feel to perform the butterfly life cycle dance while people were watching? Was anyone nervous? Was anyone excited? Did anyone have any other emotions?
- 2) Do you think your dancing helps other people learn about butterflies? Why or why not? What are other ways we can help people learn more about butterflies? Why are butterflies important to our world? What can we do to learn more about butterflies?

Enjoy!  
Marcia Daft

## **National Content Standards for Learning, grades K-3**

### **Science Standard 4: Life Science**

- Students demonstrate understanding by explaining observations and by representing concepts in multiple ways (words, drawings, etc.)
- Students produce evidence that demonstrates understanding of life cycles of organisms

### **Music Standard 6: Listening to, analyzing, and describing music**

- Students respond through purposeful movement to specific musical events while listening to music

### **Music Standard 8: Understanding relationships between music, the other arts, and disciplines outside the arts**

### **Dance Standard 1: Demonstrating movement elements and skills in performing dance**

- Students accurately demonstrate axial movements
- Students create body shapes at low, middle, and high levels
- Students demonstrate the ability to define and maintain personal space
- Students demonstrate kinesthetic awareness, concentration, and focus in performing movement skills

### **Dance Standard 2: Understanding choreographic principles, processes, and structures**

- Students create a sequence and identify each part of the sequence
- Students improvise and perform dances based on their own ideas and concepts from other sources

### **Dance Standard 7: Making connections between dance and other disciplines**

- Students create a dance project that reveals understanding of concepts from another discipline