



**School District 47**

**Outdoor & Ecological Learning**

[www.outdoors.sd47.bc.ca](http://www.outdoors.sd47.bc.ca)

604 414-4734

## Grow As You Go

### Life Cycles



## Field Experience Curriculum for Grade 2 Students

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### Curricular Workshops at the Powell Lake Outdoor Learning Center: A Tool for School District 47 Teachers

*Created in Partnership with Wild BC and the Powell Lake Outdoor Learning Center (2014)*



**Powell Lake**  
**OUTDOOR**  
LEARNING CENTRE

# Grow As You Go

## Life Cycles

Aligned with

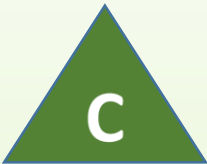




### Outing Background

All living things have a life cycle that includes birth, growth, and death. During this 4 hour inter-curricular field experience, students will have the unique opportunity to interact with local plants and animals using play and experience to explore the differences between offspring and parents, and metamorphic and non-metapomorphic life cycles.

### Grade 2 Curriculum Connections: BC's Education Plan (Winter 2014 – Draft)

The table below lists all relevant curriculum connections between Grow As You Go and BC's Education Plan. Grow as You Go is designed as a series of lessons to be delivered cohesively during one outdoor field experience. All Big Ideas are addressed in the holistic delivery of this entire workshop curriculum and are therefore listed together below.

CORE COMPETANCIES		
		
	Communication	Thinking
		
		Personal & Social
<b>SCIENCE</b>		
<b>Big Ideas</b>		
All living things have a life cycle that includes birth, growth, and death.		
<b>LANGUAGE ARTS</b>		
<b>Big Ideas</b>		
Language and stories can be a source of creativity and joy.		
Listening and speaking helps us explore, share, and develop our ideas.		
<b>SOCIAL STUDIES</b>		
<b>Big Ideas</b>		
Communities are interconnected with their natural environment.		
<b>ARTS EDUCATION</b>		
<b>Big Ideas</b>		
Creative expression develops our unique identity and voice.		
<b>MATHEMATICS</b>		
<b>Big Ideas</b>		
Number represents and describes quantity: Numbers to 100 can be decomposed into 10's and 1's.		
We can describe, measure, and compare spatial relationships: Objects and shapes have attributes.		
Analyzing data and chance help us to compare and interpret.		
<b>PHYSICAL EDUCATION</b>		
<b>Big Ideas</b>		
Daily participation in physical activity at moderate to vigorous intensity levels benefits all aspects of our well-being.		
Active play provides practice in purposeful, interactive, and skillful movement.		
<b>CAREER EDUCATION</b>		
<b>Big Ideas</b>		
Effective collaboration relies on clear, respectful communication.		

# Grow as You Go






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Compiled by Karin Westland & Janet May

# Grow as You Go

## Grab-and-Go Bin Checklist

<p> <b>Activity 1:</b> <b>The Human Life Cycle Game</b></p> <p>Materials:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> None</li> </ul>	<p> <b>Activity 2: Grow As You Go</b></p> <p>Materials:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 1 Set of Laminated Grow as You Go Cards</li> <li><input type="checkbox"/> Pictures of familiar wild animals as babies and adults.</li> <li><input type="checkbox"/> 5 Sets of Animal Life Cycle Figures</li> <li><input type="checkbox"/> 1 Set of Animal Matching Cards</li> </ul>
<p> <b>Activity Bag 3: Tree Whorls</b></p> <p>Materials:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Measuring tape or ruler, one per group or three students</li> <li><input type="checkbox"/> Grow As You Go: Whorls Data Sheets (1 per Student)</li> <li><input type="checkbox"/> Pencil, one per group</li> </ul>	<p> <b>Activity Bag 4: Frog Spawn Relay</b></p> <p>Materials:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 5 or 6 Tadpole Tails ( pieces of fabric or scarves)</li> <li><input type="checkbox"/> Markers for two ‘finish’ lines</li> </ul>
<p> <b>Activity Bag 5: Earth Ball Sharing</b></p> <p>Materials:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 1 Earth Ball</li> </ul>	



## Classroom Beginnings



### Activity 1: A Novel Idea *This is Your Life Cycle* by Heather Miller

Written as an episode for a TV show entitled “This is Your Life Cycle” Bob Beetle introduces Dahlia the Dragonfly to 3 mystery guests. Readers learn about the different stages of an insect’s life as they watch and listen to Dahlia interacting with her guests. A hilarious read aloud.

Key vocabulary: larvae, nymph, insect, predator, molting, and exoskeleton.

### Activities to Accompany the Book

1. Drama: have the students act out the show.
2. Working in groups, have the students create another version of the show using a different animal, plant, insect or fish.
3. Write a commercial to advertise a product for the show.
4. Have an “Academy Awards” presentation for the best show. Come up with a name for the award and choose appropriate categories – such as fastest swimmer, smallest insect, fiercest predator, best story, shortest life cycle...
5. Have the students write a show on their lifecycle.
6. Have the students draw their own timeline.

### Activity 2: Baby Picture Sharing & Human Life Cycle Display Board

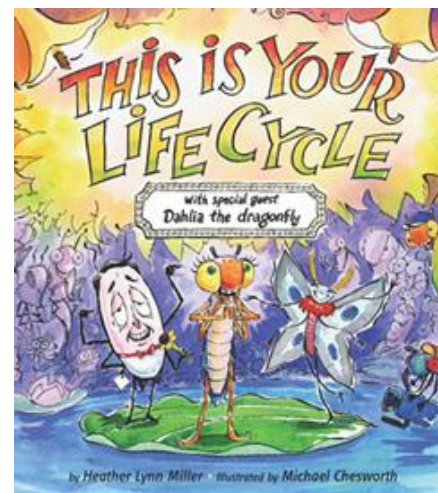
Bring a series of pictures to class depicting the teacher during the different stages in their life cycle: baby, child, teenager, and adult. Encourage all members of your class to bring a baby picture to class to share. Look at the pictures together. How can you tell who it is? What changes do you see? Make a classroom display. It could include baby pictures and current pictures. For fun, it could also include student drawings of what they think they will look like in 10 years.

*Source: Growing Up Wild, page 39.*

### Nature Journals

Encourage students to record something in a Nature Journal each time they are out in nature. Students can record the changes of a plant or tree through the seasons, or they can illustrate something they would like to remember from each nature experience. Noticing how things change during the seasons will draw their attention to the relationship between seasonal cycles and life cycles. Quiet time journaling in nature can spark a lifelong appreciation for the natural world. Bring your journals on any outdoor learning experience.

*Place-based awareness promotes an appreciation and respect for the living world. When outside, encourage students to notice the big and small things in nature rather than memorize every single part of a flower. Learning to enjoy nature and having an appreciation for life helps to foster an understanding of interconnection.*



### Song: Growing Kids (to the tune of Frere Jacques)

We were babies. We were babies.  
Yes, we were. Yes, we were.  
We grew so quickly –  
Crawling, walking, talking.  
We grew fast. We grew fast.

We are growing. We are growing.  
Yes, we are. Yes, we are.  
We are getting taller.  
And we’re getting stronger.  
Look at us. Look at us.

We’ll keep growing. We’ll keep growing.  
Yes, we will. Yes, we will.  
Someday we’ll be grown-ups.  
We’ll have jobs and families.  
One day soon. One day soon.  
*Source: Growing Up Wild, page 39.*

Compiled by Karin Westland & Janet May

## Grow as You Go Activity 1: The Human Life Cycle Game

Outdoor/ Indoor  
20 Minutes



### Background

This is an excellent game for assessing students' background knowledge of life cycles.

### Flowing Learning: Awaken Enthusiasm

#### Materials

- None

**Where to Play:** Field or Indoors



### Activity

This game is an active variation of Rock, Paper, & Scissors.

1. Ask students what the first stage is in the human life cycle – infant / baby. Invite one student to do their best demonstration of a baby. Have all the students mimic this demonstration. Then tell students that for the sake of this game, babies will be low to the ground, on their haunches, pretending to cry. Demonstrate for the students. Then have everyone do it.
2. Ask students what the middle stage is in the human life cycle – adult. Invite one student to do their best demonstration of an adult. Have all the students mimic this demonstration. Then tell students that for the sake of this game, adults will be fully standing, wagging their fingers in an I-told-you-so fashion. Demonstrate for the students. Then have everyone do it.
3. Ask students what the final stage is in the human life cycle – wise elder. Demonstrate for students the wise elder as a super hero, fist in the air singing, da da da da!!!! Then have everyone do it.
4. Ask students if they are familiar with Rock, Paper, & Scissors. Have two students come to the front of the group to demonstrate.
5. In the Human Life Cycle Game, we will be acting out rock paper scissors using stages of the human life cycle. Babies find babies, adults find adults, and wise elders find wise elders. When two life stages find each other, they play rock paper scissors with one another. Whoever wins, graduates to the next stage in the life cycle. Whoever loses, remains in their current stage in the human life cycle. Once students become wise elders, they can zip around like super heroes.
6. The game is over when everyone has achieved Wise Elder status.

### Reflection Questions

- What stages in the human life cycle were left out of this game? (In-utero, adolescents, death, etc.)
- Can you name another animal and the stages in its life cycle?
- Look around you: Can you see a plant or animal in the infant stage of its life cycle? Can you see a plant or animal in the adult stage of its life cycle? Can you see a plant or animal that is no longer alive?

**Source:** Karin Westland's Imagination

Compiled by Karin Westland & Janet May



### Background

This interactive group activity will allow students the opportunity to apply their understanding of life cycles to local animals.

**Flowing Learning:** Focus Attention

### Materials

- 5 Sets of Animal Life Cycle Figures
- 1 Set of Local Animal Picture Cards (as babies and adults)
- 1 Set of Animal Life Matching Cards
- 1 Set of Grow As You Go Cards (optional)

**Where to Play:** Field or Indoors

### Warm-Up Activity

Share the pictures of local animals as babies and adults. In what ways do these animals change as they grow? Give each child 1 **Animal Matching Card**. Have students mingle about until they find their match. After they find their matches, have the pairs tell what the animal is, share the differences, and tell whether they are the adult or baby (or other life stage).

### Main Activity

1. Ask students what animals they can think of, besides humans, that change as they grow. Have they seen chicks grow on a farm? Have they watched a pet grow? How did they change as they grew?
2. Using either the class set of **Grow As You Go** cards and/or the 5 sets of **Animal Life Cycle Figures**, show students the pictures/or figures (in order) of one of the animal life cycles. Ask children to point out ways the animal changes as it grows. As appropriate for your group, you might introduce the names of the stages.
3. Give each child either a **Grow As You Go** card or 1 of the **Animal Life Cycle Figures**, making sure that each set is complete. Invite students to walk among each other and assemble their complete life cycle. *See directions on page 82 of Growing Up Wild for variations.*
4. Ask the students to walk among each other and find the other parts of their life cycle. Stay together as a life cycle and look for more parts.
5. When everybody belongs to a group, ask them to sort themselves into the natural order of the life cycle. Then arrange themselves into a circle, to represent the complete cycle, including adult to egg, or fetus.
6. Invite each group to describe their animal and the cycle.
7. Repeat Step 2-4 if desired to allow children to become familiar with more than one animal.
8. Groups can remain as teams for the next activity.

### Wrap Up and Reflection

Invite students with the same animal cards or life cycle figures to get together and see if they can line up in order according to the stages in their animal's life cycle.

**Source:** Adapted from *Growing Up Wild*, page 38-39

Compiled by Karin Westland & Janet May

## Grow as You Go Activity 3: Tree Whorls

Outdoor  
60 Minutes



### Background

During this inter-curricular activity, students will apply their understanding of animal life cycles to local tree species. Students will recognize that a tree grows taller year by year. Douglas-fir trees grow in distinct whorls which make it possible to see how much it has grown each year. Students can measure the length between whorls and collect data for use later in class.

**Flowing Learning:** Direct Experience

**Key Words:** Whorl (noun): a circular arrangement of like parts, as leaves or flowers, around a point on an axis.

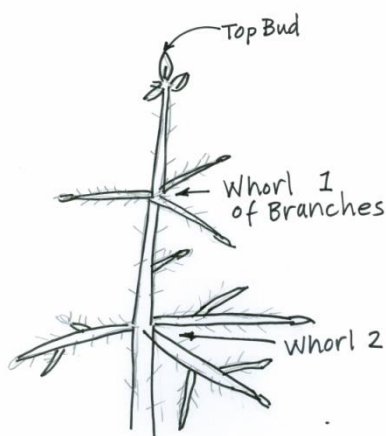
### Bin Materials

- ☐ Measuring tape or ruler, one per group or three students
- ☐ Grow As You Go: Whorls Data Sheets (1 per Student)
- ☐ Pencil, one per group

**Where to Play:** In a recently disturbed forest with young Douglas Fir trees.

### Preparation: Before Beginning the Activity

Show some young Douglas-fir trees. Be mindful of other successional species like blackberry stems that could prick the students. Optional: Observe that some of the Douglas-fir trees may be turning yellow. Can the students guess why? Conditions may be too wet for this species of tree. (They can be part of the activity too.)



Compiled by Karin Westland & Janet May



### Grow as You Go Activity 3: Tree Whorls (continued)

#### Activity

Have the students gather around one of the trees and identify the top bud and the circle of buds around it. This is called a whorl of buds and next growing season it will become a whorl of branches. Now show the students the whorl of branches directly below the top bud. The distance between this star-shaped whorl and the top bud is the distance that the Douglas-fir grew in height last year.

Knowing that Douglas-fir grows one whorl per year, what can the students tell you about this tree? The age of the tree can be roughly calculated by counting the number of whorls, branch clusters, on its' main stem. Calculate the age of the tree. The bottom branches will be difficult to see so add about two years for the last 40 cm. Is that older or younger than the students?

Compare how tall the tree is to the students. Measure how much the tree grew last year. Did the students grow that much last year? Will they grow that much next year? Will the tree?

Optional extension: Measure the length of the stem between the last three whorls and record it on the "Whorl Data Page". This can be used in a graphing exercise in class.

Divide the group into threes, or use the life cycle groups from the previous activity. Give each group a young Douglas-fir tree in the area. Ask the group to find the branch whorls and carefully count how old their tree is. Remember to add about two years for the bottom 40 cm. (Optional: Use the measuring tape and chart to collect graph data for later.)

**Source: Adapted from Joseph Cornell's *Sharing Nature with Children: Find Your Age***

### Grow As You Go: Whorls Data Page

Student Name \_\_\_\_\_

<b>Name of our tree:</b> _____	<b>Distance between whorls in centimeters</b>
<b>Top &amp; Whorl 1</b>  How much _____ grew one year ago	
<b>Whorl 1 &amp; Whorl 2</b>  How much _____ grew two years ago	
<b>Whorl 2 &amp; Whorl 3</b>  How much _____ grew three years ago	

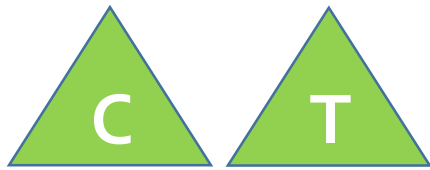
### Grow As You Go: Whorls Data Page

Student Name \_\_\_\_\_

<b>Name of our tree:</b> _____	<b>Distance between whorls in centimeters</b>
<b>Top &amp; Whorl 1</b>  How much _____ grew one year ago	
<b>Whorl 1 &amp; Whorl 2</b>  How much _____ grew two years ago	
<b>Whorl 2 &amp; Whorl 3</b>  How much _____ grew three years ago	

## Grow as You Go Activity 4: Frog Spawn Relay

Outdoor  
15 Minutes



### Summary

In this relay students act out 3 of the Stages in the Life Cycle of a Frog. All the students begin as eggs, but only a few will develop into tadpoles, and only two of those will develop into frogs.

### Background

In each Stage of the Frog Life Cycle the animal has a very different form, adapted to its environment. A significant change, from being able to breath under water to breathing in air, happens while the tadpole is growing. This is not part of the relay but could be brought up in the discussion afterwards.

The stages of growth are generally described as Egg (6-21days), Tadpole (7-10 days sticks to weed, 4 weeks loses gills, 6-9 weeks grows legs), Froglet or Young Frog (12 weeks, has stubby tail), Adult Frog (12-16 weeks)

**Key Words:** Spawn, Tadpole, Frog, Life Stages, Life Cycle

**Flow Learning:** Awaken Enthusiasm

### Bin Materials

- ☐ 5 or 6 Tadpole Tails ( pieces of fabric or scarves)
- ☐ Markers for two 'finish' lines

**Where to Play:** Field

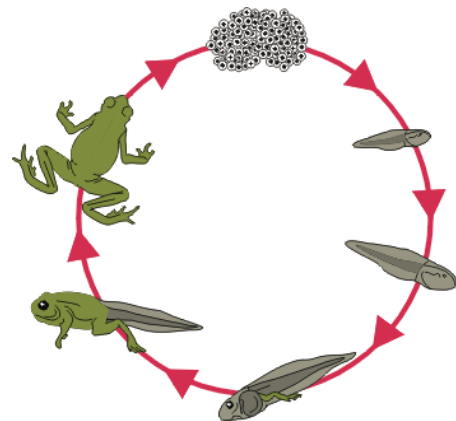
### Preparation

Mark two lines parallel to each other about 5 metres apart: line 1 and line 2. Space the Tadpole Tails along line 2. The game begins on line 1 and ends when the second set of frogs cross line 2.

### Before Beginning the Activity

Have the students gather where they can see the two lines.

Ask students if they know the 5 stages of development for a frog: Egg, Tadpole, Legged Tadpole, Froglet, Adult Frog. All students will begin as spawn, which is a mass of eggs deposited by a fish or an amphibian. In this case they are frog spawn, covered in a jelly to keep them from drying out. Show the students an example of frog spawn if available. The students are going to develop from frog eggs, but not all of them will survive to be an adult frog.



## Grow as You Go Activity 4: Frog Spawn Relay (continued)

### Activity

In the relay students will act out 3 of the stages: Egg, Tadpole and Frog. They will complete two life cycles.

Ask for a volunteer to act out the first two stages.

1. The egg stage will be acted by somersaulting from line 1 to line 2
2. There are not enough tails for all the eggs to develop into tadpoles. Most of the eggs will wait on line 2. The first eggs that get there will get a tail and hold it behind them as they pretend to swim back to the line 1.

Choose two more volunteers to act out the frogs.

3. The first two tadpoles to cross line 1 will become adult frogs.
4. Frogs will leapfrog back to line 2 where the other students are waiting.

Describe the remainder of the relay.

5. While the frogs are leapfrogging the remaining tadpoles should space the tails along the line 1. (Then they will move to the sidelines to observe the remainder of the relay.)
6. When the two adult frogs cross line 2, the waiting students are eggs again and will somersault to the opposite line where some of them will become tadpoles. Repeat steps 3 and 4.

Ask the student-eggs to spread out along line 1. And signal the beginning of the relay!

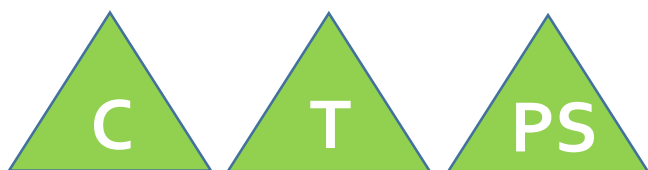
### Discussion Questions

In nature why do you think only two of the eggs might survive to become adults? (What dangers?)

What would happen if every egg developed into an adult?

What else happens to the tadpole when it becomes a frog?

**Source: Janet's May's Imagination**



### Summary

This is a reflection activity where students have an opportunity to share a special experience from the day.

**Flow Learning:** Share Inspiration

**Bin Materials:**

- 1 Earth Ball

**Where to Play:** Field or Indoors

### Activity

1. Invite students to either stand or sit in a circle.
2. Retell the story of the day back to students.
3. Give students a moment to reflect back on the day and choose one special memory or learning experience they would like to share with the group.
4. With the Earth ball in hand, tell students that the person with the Earth ball is the only one who gets to speak. The ball begins with the teacher. Tell students that after they share their special learning experience with the group, they can roll the ball back to the teacher who then rolls the ball to the next student who is ready to share.
5. The Earth ball should begin and end with the teacher.
6. Once all students have had an opportunity to share with the group, the teacher, holding the earth ball, can close the circle.

### Classroom Extensions

#### Lifecycles in the Classroom: Painted Lady Butterflies

Children love the opportunity to witness the growth and development of real living creatures in the classroom. Painted Lady Butterflies are an excellent species to integrate into the Grade 2 Classroom as they typically need 14-20 days to morph from egg to an adult butterfly.

An excellent online Grade 2 unit plan (including reproducibles) for integrating Painted Lady Butterflies into your classroom, can be found at:

[www.wsfcs.k12.nc.us/cms/lib/NC01001395/.../4627/butterflyunit.doc](http://www.wsfcs.k12.nc.us/cms/lib/NC01001395/.../4627/butterflyunit.doc)

Sourcing Painted Ladies:

<http://www.flutterbuys.ca/contact.html>

<http://www.butterflykits.ca/>

#### Related Novel Ideas

“Caterpillar to Butterfly” written by Debra Heiligman

“The Life of a Butterfly” by Robin Bernard

