



STORY SUMMARY

How does a home-cooked breakfast give a little girl the energy she needs for a brand new day? In gently expressive language, her mother takes readers on a journey into the earth where sleepy seeds are tickled awake and grow into golden oats; into blueberry patches, where green leaves break apart water and air to build sweet sugar; and into a pasture where sun becomes grass, becomes cow, becomes milk. *Sun in My Tummy* breaks big ideas into child-sized pieces, giving an accessible introduction to the concepts of matter and energy, and how the sun's light becomes fuel for our bodies through the food we eat.

“This book is as essential as sunshine; the absolutely beautiful STEM story is as absorbing as photosynthesis itself.” —*School Library Journal* ★ **Starred Review**

Links:

Crash Course Kids— “Seasons and the Sun”:

<https://www.youtube.com/watch?v=b25g4nZTHvM>

Pair this book with:

Outside, You Notice by Erin Alladin

Laura Alary believes in writing stories that make us bigger on the inside. Born in Halifax, she earned her B.A. with Honours in Classics at Dalhousie University before moving to her current home of Toronto, where she completed a PhD at the University of St. Michael’s College. Laura has worked as a lecturer, a library assistant, and a music specialist in Montessori classrooms, all the while writing books and raising her three children. Laura’s title, *What Grew in Larry’s Garden*, won the IODE Jean Throop Book Award in 2021.

Andrea Blinick is an artist and an art educator with a passion for Children’s Literature. After graduating from the Ontario College of Art and Design with an illustration diploma, she went on to receive a Bachelor of Design and then pursued a Bachelor of Education at York University. Her first picture book, *Outside, You Notice*, earned a starred review from *Kirkus Reviews*. Andrea lives in Toronto with her husband and two daughters, who often inspire the storytelling behind her art. She enjoys music, writing, comedy, travel, and making a mess on her art table.

Picture Book Ages 5–8 | ISBN: 978-1-77278-241-7 | Pages: 32

THEMES

The sun, energy, food, connectedness

READING LEVEL

Lexile Reading Level: AD540L

BISAC CODES

JNF037030 JUVENILE NONFICTION / Science & Nature / Flowers & Plants
 JNF051000 JUVENILE NONFICTION / Science & Nature / General
 JNF024010 JUVENILE NONFICTION / Health & Daily Living / Diet & Nutrition
 JNF014000 JUVENILE NONFICTION / Cooking & Food
 JNF051070 JUVENILE NONFICTION / Science & Nature / Chemistry

CURRICULUM CONNECTIONS

Reading comprehension; Science: Energy in our lives, Growth and change in plants, Daily and seasonal changes

CURRICULUM CONNECTIONS:

ACTIVITY	MAIN SUBJECT AREAS	SPECIFIC SKILLS
Read-Aloud	Comprehension	Activate prior knowledge Infer, predict, and make connections
Photosynthesis with Bricks	Science	Energy in Our Lives
Growing Things	Science	Growth and Change in Plants
Cycles	Science	Interacting responsibly with the environment
Search for the Sun	Science	Energy in Our Lives

THE READ-ALoud

Learning expectations:

Students will:

- identify reading comprehension strategies (e.g., activate prior knowledge, infer, predict, make connections) and use them before, during, and after reading to understand texts
- demonstrate an understanding that the sun, as the earth’s principle source of energy, makes it possible to grow food

You Will Need

- *Sun in My Tummy*
- a pint of washed blueberries

How To:

Before Reading

Show and read the cover. Ask students what sorts of things might be

in our tummies and what the title could possibly mean. Read the dedication page and ask again what the author’s dedication might mean. If students can’t guess, say, “let’s read and find out!”

During Reading

First spread: Before reading, invite students to imagine that they are asleep in their beds. Encourage them to see, hear, and feel the things the author is describing as you read the book. After reading, exclaim, “What?!”

Second spread: After reading, give a look of surprise. Ask who has eaten oatmeal.

Third spread: Read expressively.

Fourth spread: After reading, note how the little girl is stretching toward the sun, like the leaves of the plant. Invite students to do the same.

Fifth spread: Read expressively.

Sixth spread: After the word *blueberries*, ask who likes blueberries. Read the last sentence very dramatically.

Seventh spread: Introduce the page by saying, “Ah, I think we are going to find out how that magic works!” Read the page while tracing the process with a finger on the illustration. Emphasize the words *you*, *plants*, *more*, and *amazing*. Display your amazement at a plant’s ability to manufacture food from thin air. After reading, ask students if they know what gases exist in the air. If they don’t, you can tell them that two gases in the air are oxygen and carbon dioxide. There is also water vapor in the air, and water in the soil. Invite students to act out what the plant does while you re-read the last two paragraphs (beginning at “The leaves...”). They might grab at the air to “catch” the sun’s energy, pretend to smash invisible things in the air, and mime rebuilding something.

Eighth and ninth spreads: Read without a break, then pause for comments and questions.

Tenth spread: After reading, give each student a blueberry to taste.

Eleventh spread: As you read about the cow, point to the one in the little girl’s bowl and enjoy the joke with your students.

Twelfth and thirteenth spreads: Read expressively.

Fourteenth spread: After reading, ask students if they put the sun in their tummy this morning. Use a few examples from students’ breakfasts and trace the path of energy from the sun to the student’s tummy, then extend to how that energy is used to move and do all the things we do in a day.

After Reading

- Together, cook and eat oatmeal as described in the book.
- Look at the thirteenth spread. Contemplate the statement “Inside everything,...you will find the sun.” Brainstorm some items (food and non-food) and help students “find the sun” inside.

- Read the author’s note.
- Look through the illustrations to find all the places the illustrator has drawn the sun.
- Read books on related themes, such as *Outside, You Notice* by Erin Alladin.

ACTIVITY 1: PHOTOSYNTHESIS WITH BRICKS

Even young children can model the process of photosynthesis using a familiar building toy.

Learning expectations:

Students will:

- design and build a structure for a specific purpose
- demonstrate an understanding that the sun, as the earth’s principal source of energy, makes it possible to grow food

You Will Need

- *Sun in My Tummy*
- interlocking building bricks such as LEGO®, for each student: 4 small (1x2) blue bricks, 2 medium (2x2) black bricks, and 6 large (2x4) red bricks (sizes and colors are not important, as long as you consistently use the same size and color for each element)
- “The Building Blocks of Sugar” worksheet (included below), printed in color for each student

How To:

1. Instructions below are for students to work in groups of 3 after the first part of the exercise, creating one sugar molecule for the group. If you have a plentiful supply of bricks, you can triple the number of bricks suggested per student so that each student can make their own sugar molecule.

2. Re-read the seventh spread of *Sun in My Tummy*.
3. Give each student a copy of the worksheet, “The Building Blocks of Sugar,” 4 blue bricks, 6 red bricks, and 2 black bricks. Tell them the blue ones are called hydrogen and the red ones are called oxygen. Show them how to join together two blue and one red. Tell them this is a model of the tiniest bit of water, called a water molecule. Invite them to make one more water molecule. Tell them they can remember that these represent water because they have some blue in them, and now they are going to build a new kind of molecule, carbon dioxide. If carbon dioxide is a new word to them, tell them it’s the air that we breathe out. Breathe into a paper bag, close the top and say, “This is a bag of carbon dioxide.” Tell them the black ones are called carbon. Show them how to make 2 carbon dioxide molecules by joining 2 red bricks to each black brick.

Young students need not remember the names of the elements, nor words like “molecule” to benefit from this activity, but even in kindergarten, you will have students who are indeed keen to learn this scientific vocabulary.

4. Place students in groups of 3 and have them spread out their prepared molecules on a joint workspace. Invite them to imagine that they are a plant, with water around their roots in the soil, and carbon dioxide around their leaves in the air. These things are not actually the food they need. What they need is sugar.

Turn off the lights. Tell students they must sit on their hands when the lights are off and only use their hands when the lights are on. Tell them to imagine that they are very hungry, but there is no food. They can make food, but only if they can break apart the carbon dioxide and water molecules to get the ingredients. But they need energy from the sun to help them break the molecules apart and make the ingredients into food. Tell them to get ready, because when you turn on the lights,

that means the sun is up, and they can start breaking the molecules apart, being careful not to lose any precious ingredients off the edge of their desk!

Turn on the lights, announcing, “The sun is up!” Invite students to begin breaking apart their molecules. While they work, explain that you are putting up a recipe for plant sugar on the board: 6 black bricks (carbon), 12 blue bricks (hydrogen) and 6 red bricks (oxygen). Invite students to cooperatively build a small structure with these bricks and congratulate them on their sugar molecule.

Using sunlight, water, and carbon dioxide, they have made food for themselves! That’s called photosynthesis. Note that we are not expecting primary students to construct an accurate molecular model here, but simply to combine the specified ingredients into a single structure.

5. Invite students to draw and color their sugar model at the bottom of the worksheet.
6. Ask students what they have left over. They should have 12 red bricks left over. Tell them these are oxygen atoms, but oxygen prefers to have a buddy and be an oxygen molecule, O₂. Invite students to fasten their red bricks together in pairs. Ask, “I wonder what will happen to all this leftover oxygen? Plants don’t use oxygen, so if they keep doing photosynthesis, there will eventually be way too much oxygen.”
Discuss the fact that humans and other animals breathe in oxygen and breathe out carbon dioxide, which plants can use. In this way, plants and animals are essential to one another’s survival.
7. Make a “Photosynthesis Activity Center” where students can repeat the exercise independently. Stock the center with bricks in the colors used in this activity, copies of the worksheet, and colored pencils.

ACTIVITY 2: GROWING THINGS

Here, students have the opportunity to share the message and bring the school community on board.

Learning Expectations

Students will:

- describe the basic needs of plants, including air, water, light, warmth, and space
- describe how most plants get energy to live directly from the sun (e.g., plants turn the energy from the sun into food for themselves) and how plants help other living things to get energy from the sun
- use one or more appropriate visual aids to support or enhance oral presentations

You Will Need

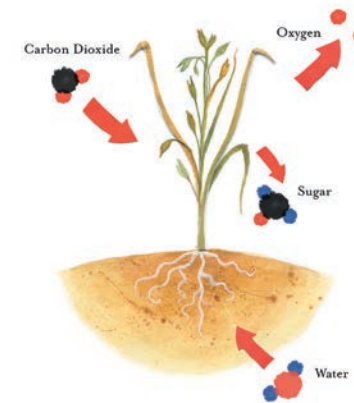
- *Sun in My Tummy*
- clipboards, pencils, and paper for each student (a rectangle of heavy cardboard with a binder clip makes an inexpensive clipboard)
- digital cameras (e.g. phones or tablets), ideally one per student
- digital and print resources for research

How To:

1. Re-read *Sun in my Tummy*, stopping to discuss any references to plants growing outdoors, as well as pollinators and other things plants need.
2. Read the author's note at the back, simplifying for younger students if necessary. Show the diagram. Make a large version of the diagram on chart paper. Point to the diagram while describing the photosynthesis process. Tie in your work from Activity 1 above. Have students practice describing the process while pointing to the diagram.
3. Give each student a clipboard, paper, and pencil.
4. Take students outside with their clipboards. Go to an area that is as rich with nature as possible, but even in a paved schoolyard, you will find

tiny plants surviving in the cracks. Ask students to record the names (or drawings) of as many plants as they can, as well as the sun, evidence of recent rain, and any potential pollinators they observe.

5. Invite students to take digital photos of at least one of the plants they have seen.
6. Back inside, help students do research to find out the name of the plant.
7. Using their photo as a guide, have students draw their plant and show the photosynthesis process on their drawings (as in the author's note). Encourage them to add pollinators, the sun, and water. Use the fourth spread of *Sun in My Tummy* to show students how to draw a soil line and roots.
8. Have each student present their drawing to the class and describe the photosynthesis process and/or life cycle.
9. Plant seeds to observe plant growth directly. Beans are popular, as they are large, quick-growing, and easy to observe and grow, especially if planted in a clear cup between a paper towel and the soil. Also consider planting seeds that will produce edible results quickly, such as micro-greens. That way, students can watch the plant grow and then actually put the sun in their tummy!



ACTIVITY 3: CYCLES

Use *Sun in My Tummy* to launch learning about cycles: daily and weekly routines, the seasons, and plant life cycles.

Learning Expectations

Students will:

- define a cycle as a circular sequence of events
- describe changes in the amount of heat and light from the sun that occur throughout the day and the seasons
- describe and compare the four seasons
- describe changes in the appearance or behavior of living things that are adaptations to seasonal changes

You Will Need

- *Sun in My Tummy*
- card stock
- brass fasteners
- markers, crayons, or colored pencils



Laura Alary, illus. Andrea Blinick
Sun In My Tummy

How To:

1. Copy the Daily Routine, Weekly Routine, and Four Seasons templates onto card stock, one per student. Students will also need three sheets of blank card stock, ideally in a different color from the templates, and three brass fasteners. Using Bristol board, make a large demonstration version of each. Note that the daily routine template is deliberately not to scale, to allow more space to record the possibly busy segments of students' days—early morning and evening.
2. Show students your daily routine template. Cut out the circle if you have not done so already. Demonstrate attaching it to a rectangle of Bristol board in a contrasting color, using a brass fastener. Write "Our Class' Daily Routine" at the top of the rectangular sheet, above the circle. While turning the wheel, read the names of the times of day as they appear right-side-up at the top. Repeat the cycle 2–3 times to be sure that students have heard the repetition. Tell students that when events repeat themselves in a circle like this, it's called a cycle.
3. Re-read *Sun in My Tummy* to students, recording on your demonstration version of the Daily Routine template any references to daily activities that they notice. Collaboratively fill in the remainder of the template using daily activities suggested by students, including activities from your classroom routine that you do each day.
4. Give students the Daily Routine templates and contrasting card stock. Instruct them to cut out the circle and attach it to the contrasting rectangle using a brass fastener. Students may write their name and a title at the top (e.g., Riley's Daily Routine). Have them fill in the parts that happen during the school day. Send them home to allow caregivers to help students fill in the early morning and evening sections.
5. Collaboratively fill in the demonstration version of the Weekly Routine template, filling in activities that happen on certain days of the week, such as physical education or music class. Have students fill those items in on their own Weekly Routines after preparing them as they did with

the Daily Routine. Send home so that students can enter their after-school and weekend activities with the assistance of caregivers.

- Find out when oats and blueberries are harvested in your area. If these things don't grow in your area, learn about harvest times in a place where they do grow. Use the demonstration version of The Four Seasons template to record your findings. Have students do the same on their own prepared templates.
- Learn about the changing amount of light and heat through the seasons, perhaps through a video like Crash Course Kids' "Seasons of the Sun" at <https://www.youtube.com/watch?v=b25g4nZTHvM>. Record your findings on the Four Seasons template and have students do the same on theirs. Discuss ways in which humans adapt to the seasons by changing their clothing and their activities, for example. Record these ideas on the templates. Learn about the life cycle of a food-bearing plant (e.g. the beans that may be growing on your window sill) and record these findings on the templates.

ACTIVITY 4: SEARCH FOR THE SUN

Where will students find the sun—in their lunch box?!

Learning Expectations

Students will:

- investigate how the sun's energy allows humans to meet their basic needs, including the need for food

You Will Need

- Sun in My Tummy*
- students' lunches

How To:

- Just before lunch break, have students take out their lunch boxes and make a short list of some foods that are inside. Write the names of any whole foods, like "apple" or "chicken". For food in packages, help students read the label to find the main ingredient(s) and add those to their list. For common foods with no label, such as bread, have them make a separate list from which they will do research to learn the main ingredient(s), if they don't know already. For schools where lunch is provided for students, use the cafeteria menu, interview the cook, or do some sort of research to learn the main ingredients of the foods that students will be eating. Aim for 2–3 items on each student's list and avoid making judgments about foods students bring from home. Every food, whether healthy or not, contains energy from the sun. Have students save their lists until their next science class.
- During the next science class, use the lists from the lunch activity to trace the journey of the sun's energy from the sun to their tummy, using the format of *Sun in My Tummy* as a model.
- Encourage students to teach their families what they have learned about the sun's energy, by repeating the exercise at home with dinner or breakfast foods.

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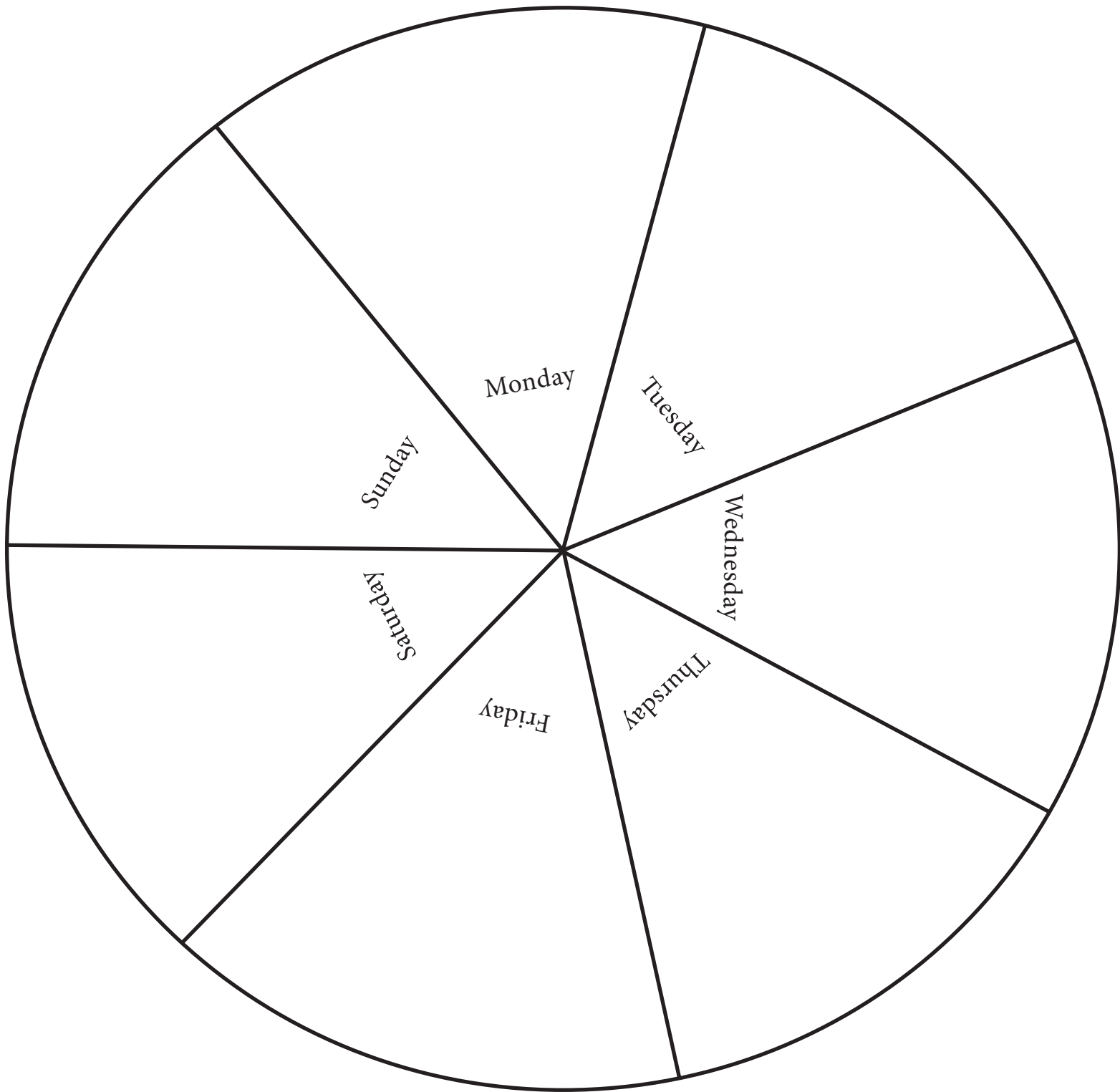


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<http://www.edu.gov.on.ca/eng/curriculum/elementary/scientec18currb.pdf>

<http://www.edu.gov.on.ca/eng/curriculum/elementary/arts18b09curr.pdf>



The Building Blocks of Sugar

Name _____

hydrogen



carbon



oxygen



water (H₂O)



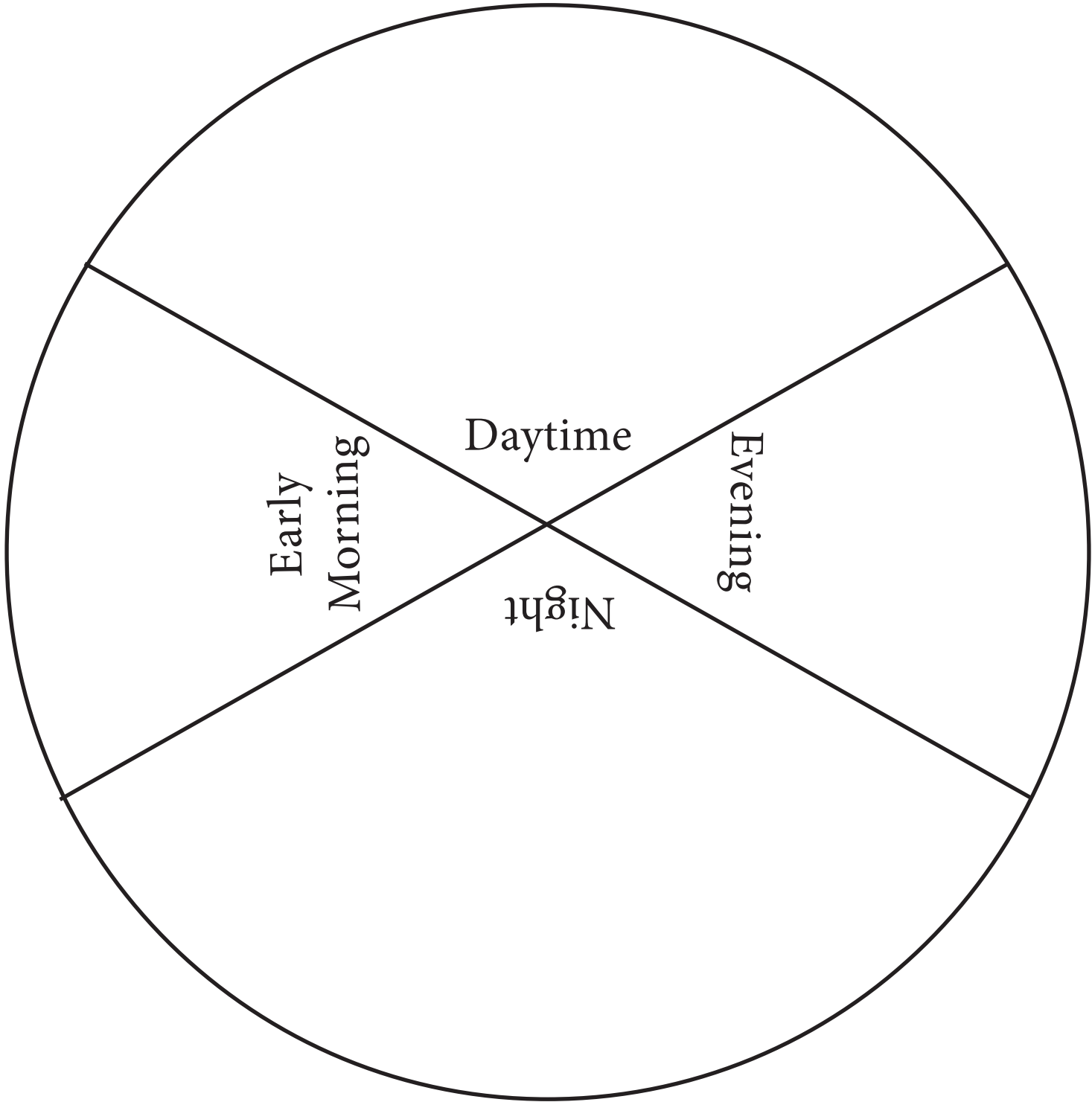
carbon dioxide (CO₂)

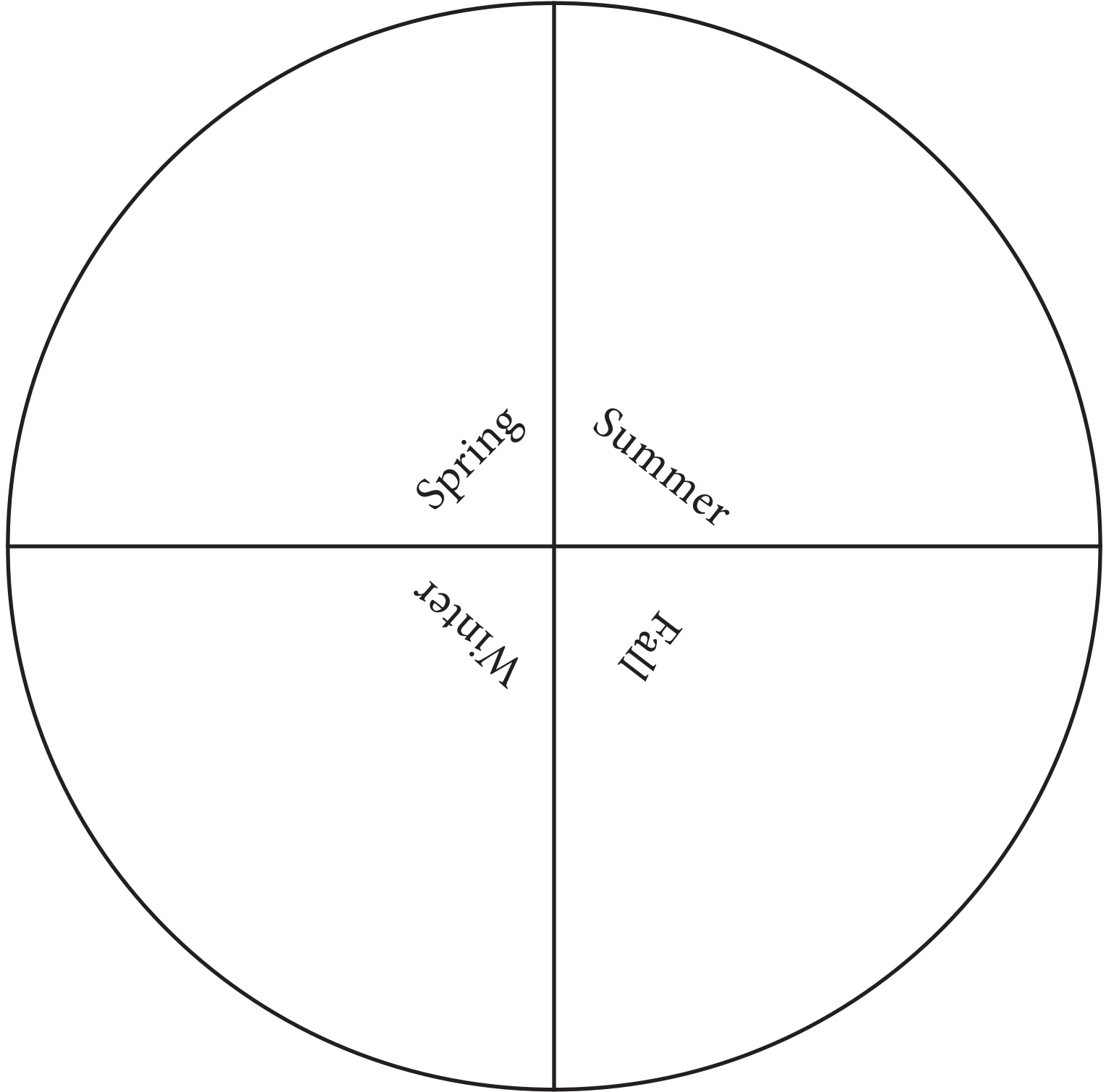


Photosynthesis:

Water + Carbon Dioxide + Energy from the sun = sugar (C₆H₁₂O₆)

Draw and color your sugar molecule:





Spring

Summer

Fall

Winter