

Tic-Tac-Toe

SINGLE LESSON – Project Development Guide with Templates and Examples



ACTIVE LEARNING
FOCUS

ABOUT THIS RESOURCE

A Tic-Tac-Toe board gives students agency over their learning: they can make choices about what they learn or how they demonstrate proficiency. This type of choice board provides both structured expectations and opportunity for differentiation, so that you can meet the needs of an entire class or group of students with one assignment.

HOW TO USE THIS RESOURCE

- Define your goals. What specific standards, learning goals, or skills do you want students to practice or demonstrate?
- Determine where you can offer choice.
 - Content:** choices in instructional materials (articles, videos, audio texts, etc.)
 - Process:** choices in activity sequence or pacing, choices in tasks to show mastery or for building toward work product
 - Product:** choices in assessment or culminating task/project
- Review and customize the template on the following page. Reference the [science](#) and [math](#) examples for inspiration. Be mindful of what each Tic-Tac-Toe possible combination will ask students to do. If there is a whole-class activity you want to complete, put it in the center square and require students to use it.
- Optional:* Consider using AI to help create the activities for your board. Check out [Using AI to Support Student Choice](#) for support writing AI prompts.

<< TEMPLATE >>

Tic-Tac-Toe

Complete any three activities to earn Tic-Tac-Toe.

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EXAMPLE

The Chemistry of Life Tic-Tac-Toe

Complete any three activities to earn Tic Tac Toe. *You must use the center space.*

| | | |
|---|--|--|
| Fill out the Macromolecule chart independently. | Collaborate with a partner on the Periodic Trends Card Sort. | Collaborate with a small group to complete the Properties of Water Lab. |
| Collaborate with a partner on the Macromolecule Card Sort. | Investigate with your lab group: <i>Who Took Jerell's iPod.</i> | Create a Properties of Water vocabulary foldable independently. |
| Independently take notes on the Biomolecules Video from the Amoeba Sisters. | Independently take notes on the Water-Liquid Awesome Video from the CrashCourse. | Independently take notes on the Properties of Water Video from the Amoeba Sisters. |

EXAMPLE

Teacher Guide: The Chemistry of Life Tic-Tac-Toe

IMPLEMENTATION

- Students must complete three options in a row from the board earning Tic-Tac-Toe. They must use the center space in this example.
- Options are designed so that students will be able to show mastery of all of the following concepts, as long as they choose three in a row: macromolecules, the properties of water essential for life, and (optionally) Periodic Table trends. Students still needing support in Periodic Table trends before moving on should be instructed to complete Tic-Tac-Toe in the center column.
- Choosing three options in a row ensures that students will work both independently and collaboratively. Students collaborate with peers through lab and partner work and self-pace through independent work.

| | | |
|---|--|---|
| <p>Macromolecule Chart Print or assign digitally.</p> | <p>Periodic Trends Card Sort Print and cut a <i>colored</i> set of cards for each group.</p> | <p>Lab from Biology Junction. Print a copy for each student. Plan lab time for all groups to complete at the same time. Read through PDF to plan your lab. Make any changes necessary for your students or classroom.</p> |
| <p>Macromolecule Card Sort Print and cut a set of cards for each group.</p> | <p>Lab from Serendip Studios <i>ALL STUDENTS COMPLETE.</i> Print a copy for each student. Use the Teacher Prep Notes to plan your lab and schedule lab time. Make any changes as needed.</p> | <p>Properties of Water vocabulary foldable foldables should include hydrogen bonding, polarity, cohesion, adhesion, universal solvent, temperature moderation, and expansion upon freezing.</p> |
| <p>Biomolecules Video from the Amoeba Sisters.</p> | <p>Water - Liquid Awesome Video from CrashCourse.</p> | <p>Properties of Water Video from the Amoeba Sisters.</p> |

EXAMPLE


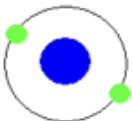
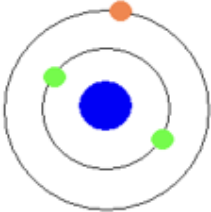
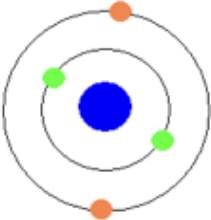
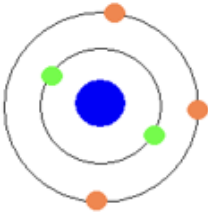
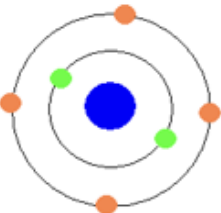
Macromolecule Chart

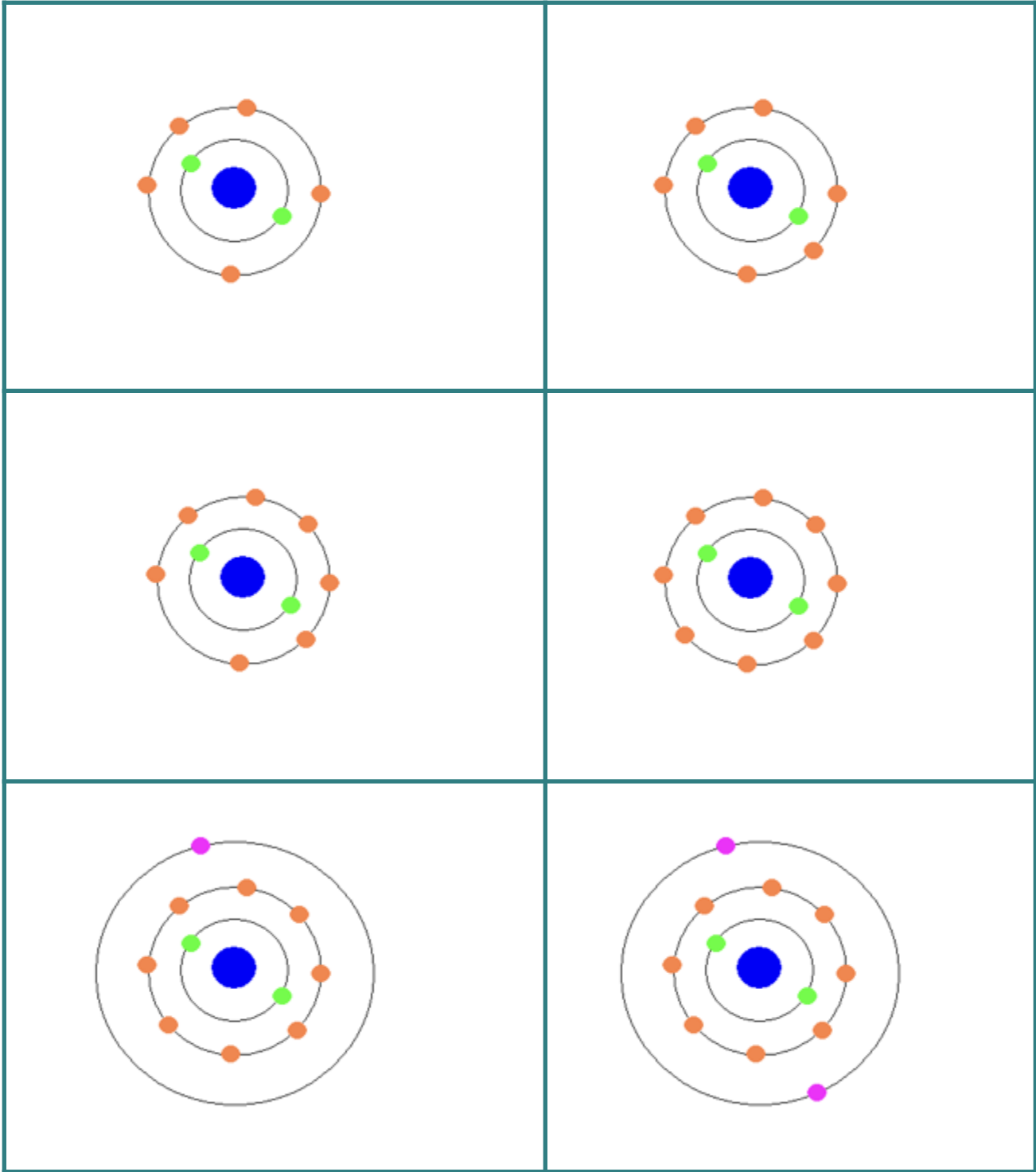
| | Elements included in structure | Picture of Basic Structure | Monomer and Polymer | Functions (at least 3) | Examples |
|---------------|--------------------------------|----------------------------|---------------------|------------------------|----------|
| Carbohydrates | | | | | |
| Lipids | | | | | |
| Proteins | | | | | |
| Nucleic Acids | | | | | |

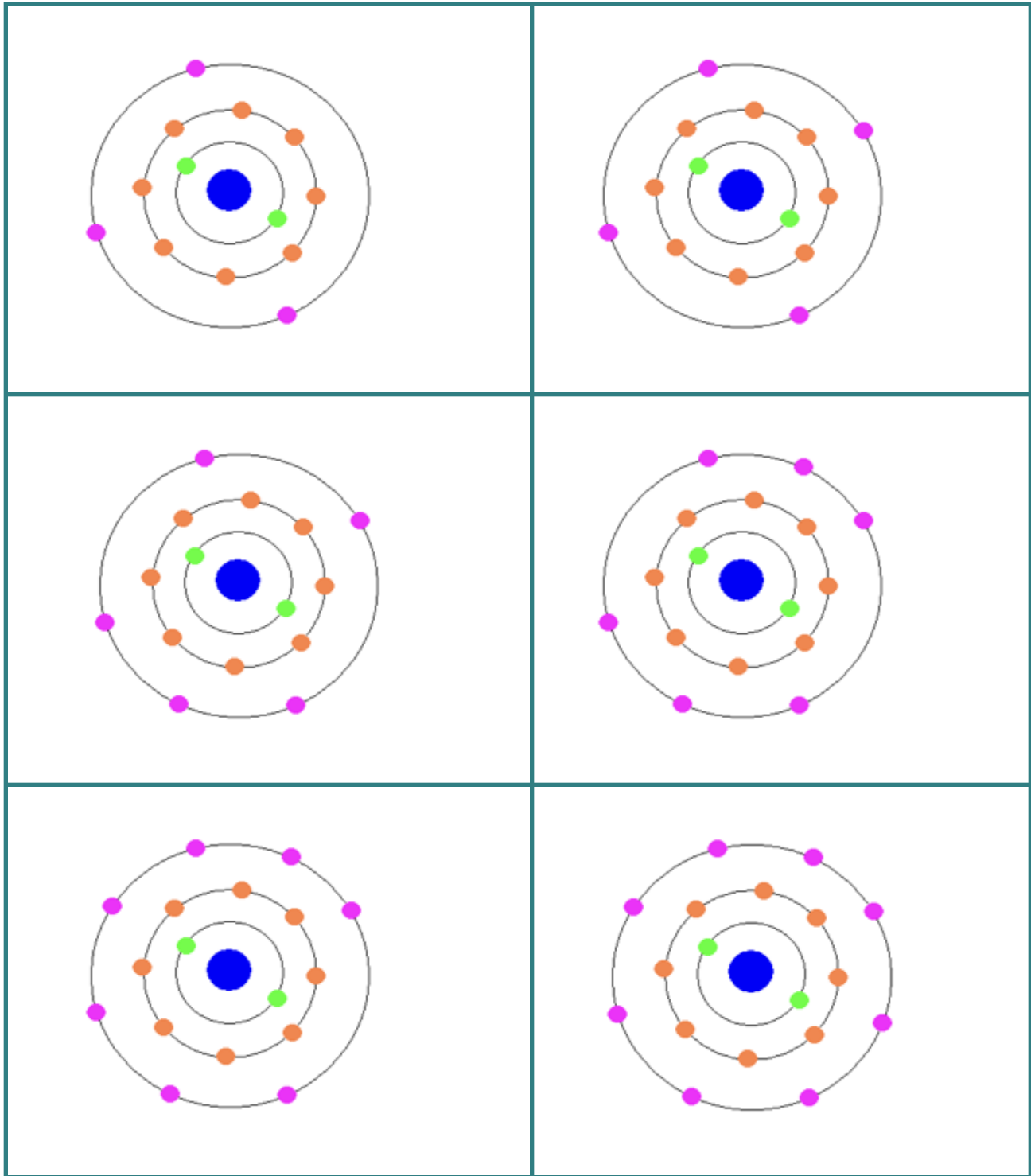
EXAMPLE

Periodic Trends Card Sort

Ask each group to organize the cards any way they want. After you have reviewed their work, mix up the cards for them to sort by another trend: dots, rings, dots on outside rings, color, etc. Students should understand that the cards represent the elements at the top of the Periodic Table of Elements.

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EXAMPLE

Macromolecule Card Sort

| | | |
|---|---------------------------|-------------------------------------|
| C, H, and little O | Polysaccharides | 1C : 2H : 1O |
| Nonpolar | Waxes and Fats | Instructions for making amino acids |
| Form skin, muscle, and hair | Monosaccharides | Immediate energy source |
| Starch | C, H, O, N sometimes S | Glucose |
| Breads, pastas, etc. | -ose ending of name | Insoluble in water |
| Enzymes | RNA | DNA |
| Triglycerides | Stores excess energy | Cell membrane bilayer |
| Amino Acids | Nucleotides | Fatty Acids |
| Controls rate of reactions as catalysts | Polypeptides | Stores genetic information |

EXAMPLE

Algebra Tic-Tac-Toe

Complete any three activities by simplifying the algebraic expression to earn Tic-Tac-Toe. *You must use the center space.*

| | | |
|-------------------------|-----------------------------------|----------------------|
| $4y + 2y - 3y$ | $6x - 2y + 3x + 5y$ | $5a - 2b + 3a + 4b$ |
| $2a + 3b - 4a - 2b$ | $2a^2 - 3b + 4a - 2b^2 - 3a + 5b$ | $3x + 2x - 5x$ |
| $5x^2 + 2x - 3x^2 - 4x$ | $3a - 2b + 4a + 5b - 2a - 3b$ | $2x^2 + 3x^2 - 4x^2$ |

EXAMPLE

Teacher Solutions: Algebra Tic-Tac-Toe

| | | |
|-------------------------------------|---|-------------------------------|
| $4y + 2y - 3y = 3y$ | $6x - 2y + 3x + 5y = 9x + 3y$ | $5a - 2b + 3a + 4b = 8a + 2b$ |
| $2a + 3b - 4a - 2b = -2a + b$ | $2a^2 - 3b + 4a - 2b^2 - 3a + 5b = 2a^2 - 3a + 4a - 2b^2 - 5b - 3b$ | $3x + 2x - 5x = 0x$ |
| $5x^2 + 2x - 3x^2 - 4x = 2x^2 - 2x$ | $3a - 2b + 4a + 5b - 2a - 3b = 5a$ | $2x^2 + 3x^2 - 4x^2 = x^2$ |

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