Making Sense With Sequencing

Sequencing of Events

Aimee King, Patricia Turner, Janis Slater
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Grade Level	2nd – 4th Grade	**Time Frame**	120 minutes
Subject	English/Language Arts, Science	**Duration**	2 class periods
Course	Oklahoma Young Scholars/Javits		

Essential Question

What happens in the beginning, middle, and end of a story? Why is sequencing important for comprehension? How do sequences help us in our everyday lives?

Summary

The ability to sequence events in a text is a key comprehension strategy, especially for narrative texts. This lesson will allow students to construct a story by placing events into sequential order, analyze clue words that writers use for sequencing, and create a sequential timeline of the story "Ada Twist, Scientist." Using the book as a catalyst for scientific curiosity, students then participate in a STEM activity that must be performed in a certain sequence. Students demonstrate their understanding of using sequence by writing a narrative about their experience using proper sequence words throughout their story.

Snapshot

Engage

Students move sentences around to create a sequential story, and the class begins an Anchor Chart with ideas and clue words for sequencing.

Explore

Students listen to the story *Ada Twist, Scientist* or a story of your choice that is in sequential order. Then, groups and pairs of students recall specific events from the story using sticky notes.

Explain

Students work together to place events from the story in sequential order with a timeline.

Extend

Students work in groups on an engineering challenge of building the tallest tower to hold an object, using the book *Ada Twist, Scientist* as a catalyst.

Evaluate

Students demonstrate their knowledge of sequencing by writing a narrative about their engineering experience using proper sequence words throughout.

Standards

Oklahoma Academic Standards (4th Grade)

4.PS3.4.3: Possible solutions to a problem are limited by available materials and resources (constraints). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.
4.PS3.4.4: The success of a designed solution is determined by considering the desired features of a solution (criteria).
4.PS3.4.5: Engineers improve existing technologies or develop new ones.

Oklahoma Academic Standards for English Language Arts (Grade 3)

3.3.R.6: Students will describe the structure of a text (e.g., description, compare/contrast, sequential, problem/solution, cause/effect) with guidance and support.

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Attachments

- Cognitive Comic Template—Making Sense With Sequencing - Spanish.docx
- Cognitive Comic Template—Making Sense With Sequencing - Spanish.pdf
- Cognitive Comic Template—Making Sense With Sequencing.docx
- Cognitive Comic Template—Making Sense With Sequencing.pdf
- Engineering Design Process—Making Sense With Sequencing - Spanish.docx
- Engineering Design Process—Making Sense With Sequencing - Spanish.pdf
- Engineering Design Process—Making Sense With Sequencing.docx
- Engineering Design Process—Making Sense With Sequencing.pdf
- Lesson Slides—Making Sense With Sequencing.pptx
- Mixed Up Morning Story Strips—Making Sense With Sequencing - Spanish.docx
- Mixed Up Morning Story Strips—Making Sense With Sequencing - Spanish.pdf
- Mixed Up Morning Story Strips—Making Sense With Sequencing .docx
- Mixed Up Morning Story Strips—Making Sense With Sequencing .pdf

Materials

- *Mixed Up Morning* Story Strips (attached; one set per student)
- Lesson Slides (attached)
- Engineering Design Model handout (attached; one half-sheet per student)
- Cognitive Comics Template handout (attached)
- Chart paper
- *Ada Twist, Scientist* by Andrea Beaty
- 6 pads of regular-size sticky notes (2 colors)
- 6 pads (all the same color) of small sticky notes
- 15–20 plastic cups (9 oz. or larger)
- 20 large popsicle sticks (tongue depressor size)
- One object to place on top of the finished tower (a plastic toy character, block, or other play object that can stand on its own)

25 minutes

Engage

Using the attached **Lesson Slides** to guide the lesson, move through **slides 3–4** and review the lesson's essential questions and objectives.

Move to **slide 5** and give each student an envelope containing the attached **Mixed Up Morning Story Strips**. Have students individually move the sentences around to create a sequential story. Have students share their stories with their Elbow Partner and discuss the differences between their stories as well as what they would do to improve their stories.

Teacher's Note: *Mixed Up Morning*

The Mixed Up Morning story (in order) is as follows:

This morning I got on the bus. I brushed my teeth and then I got out of bed. My Mom gave me a hug as I went out the door. When we were on the bus, I sat with my friend Tara. At breakfast, my dad told me to do my best at my track meet today. Beep! Beep! I pushed snooze about three times this morning. I finally rolled out of bed. I walked into school and saw my best friend, Beth.

Next, display **slide 6** and have a short class discussion based on these partner conversations. The main share will likely be that the story had to be put in the proper order for it to make sense. Ask students to share what helped them put the story in order. Were there any clues?

Create an Anchor Chart with the following ideas and clue words for sequencing:

Possible Anchor Chart Content

- What is Sequence? *Sequence is the order of events in a story.*
- Transition words to show how events took place over time....
  - first
  - next
  - after that
  - finally
  - later
  - eventually
- The anchor chart can be added to throughout the year and additional words can be added such as: meanwhile, afterward, in conclusion, before, or initially.

30 minutes

Explore

Teacher's Note: Activity Preparation

Since the word “hypothesis” is essential in this story, make sure students know what this word means before beginning the activity. Use **slide 7** to review this if necessary. If not, skip this slide.

To make remembering which pages each group writes about easier, place the sticky notes in your copy of the book before reading the book to students. For example, the first two pages are the blue sticky group, the next two green, the following two pages are blue again, and so on.

Introduce the story *Ada Twist, Scientist* and display **slide 8**. Tell students, "This book is about the power of a child's curiosity who is on a mission to use science to understand her world. However, we are using this book to explore how the sequence is used in an entertaining story."

Move through **slides 9 and 10** as you explain the following procedures and place students in groups of four. Give each group one pad of blue sticky notes and one pad of green. One pair of students works with green and the other with blue.

Tell students, "As I read the story, I will stop before turning the page. I will say, ‘Blue groups write an event from this page on your blue sticky. The green group listens.’ I will then turn the page and read the next two pages. Now the green groups writes an event on a green sticky. You will use a new sticky each time.” Example sticky notes are provided on **slide 11**.

Pairs will work together to write on one sticky note each time it is their turn and place it in a pile on their desk. Do this until you reach the end of the story.

At the end of the story, move to **slide 12** and have students put the blue and green sticky notes from their group of four in a pile. If this is the stopping place for the day, have them label their pile with a group name and collect the piles. Make sure to keep the piles of separated by groups. Mix each pile up before returning them to the students so the stickies are out of order.

Optional: Technology Integration

You can also facilitate this activity by creating a digital board in Canva or Google Slides. Insert shapes in two different colors to serve as digital sticky notes. Have students access your sticky note board on their devices and follow the procedure described above.

20 minutes

Explain

Display **slide 13**. In this part of the lesson, students work in groups of four. Each group will read the events written on the sticky notes and work together to place them in sequential order.

Next, give students 4–5 small sticky notes of a different color and have them write sequencing words from the Anchor Chart on the sticky notes. Students will place the sticky notes within their timelines to help make the order more evident.

Move to **slide 14**. Students will then do a Gallery Walk to look at the other teams' timelines of the story. As they move from one group to the other, they should note any differences, specifically what sequencing words that team chose to use.

After the Gallery Walk, move to **slide 15** and have a class discussion about the importance sequence plays in a story. Ask students if they think any ideas should be added to the Anchor Chart.

30 minutes

Extend

Display **slide 16** and show students the page where Ada wreaks havoc in the classroom. Then, ask students, "Why do you think doing science is often messy?" Students' answers will vary.

Next, ask students, "Do science investigations always go as planned?" *No*. What do scientists and engineers do when their experiments and designs do not work as planned? *They ask more questions and try new ideas*.

Move to **slide 17** and show students the pages where Ada writes her new questions and ideas on the wall while in the "Thinking Chair." First, ask students, "How do you think that writing down ideas and questions might provide Ada with new ways to find answers to her questions?" *Answers will vary, but you should point out that scientists and engineers usually write their questions and ideas in notebooks.* Next, ask students, "Why do you think it might be important for scientists to write down their ideas in sequence as they learn new things from their investigations?"

Display slide 18 and introduce the Engineering Design Process. Pass out a copy of the attached **Engineering Design Process** handout to each student and discuss how engineers use a sequence of activities to help them develop their invention. Explain to students that they will be doing an engineering challenge in which they will determine the best way to build a structure.

Teacher's Note: Conducting the Engineering Challenge

The engineering challenge can be done in several ways depending on teacher preference, available materials, and student needs. The suggestions provided here can be altered to fit your situation. For example, the number of cups and sticks can be changed, different materials can be chosen, the time can be increased or decreased, group size can be changed, etc. Try the challenge yourself before presenting it to the students to ensure that it will work for the needs of your classroom.

You may wish to have a height competition between groups, but it is optional for this lesson. Regardless, be sure that all students get a chance to complete the challenge. If necessary, provide extra help or time for groups that need it. A complete design is essential to complete the rest of the lesson.

Display **slide 19** and explain the Engineering Challenge.

Challenge: Build the tallest tower that can hold an object without collapsing.

Suggested Materials (**per group**)**:**

- 15-20 plastic cups (9 oz. or larger)
- 20 large popsicle sticks (tongue depressor size)
- One object to place on top of the finished tower (a plastic toy character, block, or other play objects that can stand on its own)

Suggested Rules (criteria and constraints):

- Work in groups of two
- Both cups *and* sticks must be used (but no more than provided)
- 10-minute time limit
- The object must stand on top of the tower for at least 15 seconds without falling

Have students work in pairs to complete the challenge by following the rules and constraints. Tell them they will reflect and write about their experience after the challenge is complete. Once all the towers are completed, have the groups briefly share about their towers.

Remind students that engineers usually share their ideas with others in writing once the design is completed and tested. Tell them their group will share how to build their structure with another group. Ask the class to brainstorm ways to share this procedure in writing. Ensure they bring up the idea that the steps must be sequenced to assemble the structure. They should begin by writing a numbered list of what should be done to build their tower design.

Have each group write a list of steps and then test it with their materials to be sure it works. Have them adjust their lists if necessary. They will keep their list for the Evaluate section.

Wrap up by asking the group, "What does this activity tell us about the importance of sequencing our descriptions?"

15 minutes

Evaluate

Display **slide 20** and explain the procedure for writing the narrative.

Using the group list of steps, have each student write a narrative to tell someone how to build their tower. They should make sure to use proper sequence words throughout their story. Then, have them switch papers with someone else and have them test their building instructions to see how they work. Students should have a chance to adjust their narrative before handing it in.

Opportunities for Gifted Learners

Have students create a Cognitive Comic. They should write their comics with factual information and in the correct sequence. Students should pick their topic but may need help to narrow it down. Ample time should be allotted for students to research their topic. They can also use the attached **Cognitive Comic Template** handout if needed.

Some suggested topics:

- Tracking an Armadillo's Journey
- Tracking a Monarch Butterflies Journey
- How did Benjamin Franklin discover electricity?
- What happened in *A Christmas Carol* by Charles Dickens?
- How to make _____? The topic should be more complex than a peanut butter and jelly sandwich.
- What would a day in the life of a _____ be like?

Resources

- Cover image: https://www.flickr.com/photos/128733321@N05/18995504943
- K20 Center. (n.d.). Anchor charts. Strategies. https://learn.k20center.ou.edu/strategy/58
- K20 Center. (n.d.). Canva. Tech tools. https://learn.k20center.ou.edu/tech-tool/612
- K20 Center. (n.d.). Cognitive comics. Strategies. https://learn.k20center.ou.edu/strategy/198
- K20 Center. (n.d.). Elbow partners. Strategies. https://learn.k20center.ou.edu/strategy/116
- K20 Center. (n.d.). Gallery walk / carousel. Strategies. https://learn.k20center.ou.edu/strategy/118
- K20 Center. (n.d.). Google slides. Tech tools. https://learn.k20center.ou.edu/tech-tool/2335
- Sader, R. (2017). Ada Twist, Scientist. Abrams Books for Young Readers.