**“Comparing Leaves”**

**Elementary (K–2): Science**

**Academic focus**

Students observe, compare, and describe different types of leaves.

**SEL focus**

Students share materials fairly as they work in pairs.

(SEL Core Competencies: Self-management, Relationship Skills, Responsible Decision-making)

**Materials**

• Plastic baggie containing 4 leaves of different shapes and sizes for each pair, plus one for modeling

• Chart paper and a marker

• (Optional) Paper, pencils, and crayons for each pair

**Before The Lesson**

* Pair students and give partners a few minutes to connect and get to know each other. (You may need to create a group of three.)
* Teach (or review) [“Turn to Your Partner”](http://live-schoolguide.pantheonsite.io/module/supportive-classroom-environment/#talk-to-your-partner) by explaining that when you give this prompt, partners will turn to face each other and begin talking. When you signal by raising your hand, partners will finish what they are saying and turn their attention back to you. Practice this several times before teaching this lesson. (Whatever your attention signal, use it consistently so that it becomes a well-tuned practice for all students.)
* Read aloud one or more books about leaves, and discuss them as a class. Some possible titles: *We’re Going on a Leaf Hunt* by Steve Metzger, *Leaf Man* by Lois Ellert, and *Why Do Leaves Change Color?* by Betsy Maestro.

**The Lesson**

**1. Introduce the lesson and review words about leaves.** Gather the class with partners sitting together. Show covers of the books about leaves that students have heard recently, and ask:

*Q. We’ve been reading about leaves. What do you know about leaves?* (pause) *Turn to your partner.*

 Scan the class as partners talk. After a few moments, signal for attention. Restate the question and have a few pairs share with the class. Then ask:

*Q. What are some words we’ve read and heard to describe leaves?*

As students offer suggestions, record them in large print on chart paper. For example:

**Words About Leaves**

**Long Round**

**Green Brown**

**Red Crinkly**

**Sharp Smooth**

**2. Explain the activity.** Show a baggie of leaves and explain that it contains four leaves. Take out two leaves and discuss the following questions.

**Teacher Note**

Keep this discussion moving by calling on just 1–2 students to respond to each question during the whole class sharing.

Teach listening directly by saying, “[Anna] is going to share now. Let’s all turn and give her our attention.”

*Q.* (Hold up one leaf.) *What are some words that could describe this leaf?*

*Q.* (Hold up a second leaf.) *What are some words that could describe this leaf?*

*Q. What are some ways these two leaves are alike?*

*Q. What are some ways these two leaves are different? Turn to your partner.*

 Explain that each pair will receive a baggie of leaves. Their job is to *observe*, or look at, the leaves together and talk about how the leaves are alike and different. Encourage students to use words on the chart and any other words they can think of to describe the leaves. Before distributing materials and beginning the activity, briefly discuss:

*Q. What will you do to work well with your partner today?*

**3. Have pairs work together to explore the leaves.** Distribute the baggies of leaves and have pairs return to their desks and begin. As pairs work, circulate, observe, and assess.

**Teacher Note**

Try not to interrupt pairs as they work. Intervene only if partners are having difficulty that they cannot resolve on their own.

**Class Assessment**

Observe pairs as they work and note for yourself:

• Do students use vocabulary they have learned to describe the leaves?

• Do they discuss similarities and differences among the leaves?

• Are partners sharing materials fairly? If not, how do they try to resolve this?

**4. (Optional) Have pairs choose and draw two leaves (one each).** As pairs work, distribute paper, pencils, and crayons to each pair. Use your attention signal and explain that you would like partners to choose two of their leaves to draw. Before starting, briefly discuss as a class:

*Q. What will you and your partner do to share this work fairly?*

**5. Reflect on the lesson.** Collect all materials. Gather the class with partners sitting together. Ask and discuss as a class/:

**Teacher Note**

During this discussion, encourage students to use the discussion prompts:

 “I agree with \_\_ because…”

 “I have a different idea because…”

 “In addition to what \_\_ said, I think…”

*Q. What did you learn about leaves today that you didn’t know before?*

*Q. What are some ways that your leaves were alike? Different?*

 Briefly explain that when people look for ways that things are alike and different, they are *comparing* them. Write the word where everyone can see it and invite the students to say the word with you. Then ask:

*Q. How did you and your partner share the work and the materials fairly? How do you know that that way was fair?*

*Q. Why is it important to share materials fairly when you work with a partner?*

*Q. What is one thing you appreciated about working with your partner today? Turn and tell your partner.*

 Explain that students will have further opportunities to compare things and to practice sharing work and materials fairly with other partners.

**Extension**

 Provide further opportunities for students to work in pairs to build academic vocabulary and make comparisons using things like coins, rocks, shoes, and story characters. Also continue to have partners practice and reflect on how they are sharing work and materials fairly.

**OST Alignment**

To build on the SEL lessons taught during this academic lesson, OST providers can reinforce the importance of sharing fairly. In providing instructions for activities, for example, the OST provider might say, “Remember to share our materials fairly, just like you did in Science today, during the ‘Changing Leaves’ activity.”

**“Writing with Our Senses”**

**Elementary (3–5): Language Arts**

**Academic focus**

Students visualize and recognize sensory detail and emotion in text, then write using sensory detail.

**SEL focus**

Students identify emotions elicited by text, listen to their partner, and share their partner’s thinking with the class.

(SEL Core Competencies: Self-awareness, Social Awareness, Relationship Skills)

**Materials**

• “Daybreak in Alabama” by Langston Hughes (see attached)

• Copy of “Daybreak in Alabama” for each pair

• Paper and pencil for each student

**Before The Lesson**

• Pair students and give partners a few minutes to connect and get to know each other. (You may need to create a group of three.)

• Teach (or review) [“Turn to Your Partner”](http://test-casel-school-guide.pantheonsite.io/module/supportive-classroom-environment/#talk-to-your-partner) by explaining that when you give this prompt, partners will turn to face each other and begin talking. When you signal by raising your hand, partners will finish what they are saying and turn their attention back to you. Practice this several times before teaching this lesson.

• Read aloud stories and/or poems that include evocative, sensory language. Read them for enjoyment, inviting students to talk about what the stories or poems make them imagine and feel.

**The Lesson**

**1. Introduce the lesson.** Gather the class with partners sitting together. Explain that the students will hear a poem today and talk about it with their partner. In the whole-class discussion, they will practice sharing *their partner’s* thinking (not their own) with the class. Ask and briefly discuss:

*Q. What will you do today to make sure that you are ready to share your partner’s thinking with the class?*

*Q. What can you do to make sure your partner understands you clearly?*

 Ask the students to keep in mind the things they talked about and explain that you will check in with them at the end of the lesson.

**2. Read “Daybreak in Alabama” aloud (twice).** Explain that you will read aloud “Daybreak in Alabama” by Langston Hughes. Ask and briefly discuss:

 *Q. Hearing this title, what do you think this poem might be about? Turn to your partner and share.*

 Scan the class as partners talk. After a moment, signal for attention and ask:

 *Q. What did your partner think this poem might be about?*

Ask the students to close their eyes and try to get a picture in their minds as you read the poem. Read the poem aloud, slowly and clearly.

**Teacher Note**

If necessary, support comprehension, especially for English Language Learners, by defining the words *composer* and *scent*.

 Explain that you will read the poem aloud a second time. Ask students to listen for things they might have missed in the first reading.

 Read the poem aloud again, slowly and clearly.

**3. Discuss the poem.** Discuss the poem using the following questions. As students refer to different parts of the poem, reread the text to help the students recall what they heard.

**Teacher Note**

Keep this discussion moving by calling on just 2–3 students to respond to each question during the whole class sharing.

*Q. What is this poem about?*

*Q. What is Alabama like at daybreak for this poet?*

*Q. What did you imagine in your mind as you listened?* (Reread relevant lines.) *What do you feel when you hear those lines?*

*Q.* (Reread the 6 lines, “Of black and white…natural as dew”.) *What do you think Langston Hughes is trying to communicate here?* (pause) *Turn to your partner.*

**Teacher Note**

Facilitative questions include:

*Q. What did you think about when you heard what Eli said? What does what [Eli] just shared make you think about?*

*Q. Do you agree or disagree with what [Aaliyah] shared, and why?*

 Signal for attention. Restate the question, then ask:

*Q. What did your partner say?*

 Have several volunteers share their partner’s thinking with the class. As students share, ask facilitative questions to connect and extend their thinking.

**4. Have pairs identify sensory details in the poem.** Point out that Langston Hughes, like most poets, uses *sensory details* that help the reader imagine and feel the meanings in the poem. Explain that partners will reread the poem and together underline 2–3 of the most powerful sensory details (in their opinion) in the poem. Ask them to discuss the images or feelings they had when reading the underlined passages.

 Distribute a copy of “Daybreak in Alabama” to each pair and have them begin. As pairs work, circulate, observe, and assess.

**Teacher Note**

Try not to interrupt pairs as they work. Intervene only if partners are having difficulty that they cannot resolve on their own.

**Class Assessment**

Observe pairs as they work and make note of:

• Do students identify sensory details in the text?

• Do they verbalize images and feelings connected to those sensory details?

• Are partners listening closely to each other?

**Teacher Note**

During this sharing, teach listening directly by saying, “[Isaac and Madelyn] are going to share now. Let’s all show him/her that we are listening.”

**5. Discuss and reflect.** Signal for attention. Have several pairs share a passage or line they underlined in the poem and the images or feelings that were evoked for them.

 Encourage students to look for sensory details whenever they read, noticing how those details help them feel or imagine the meanings in the text. Briefly discuss:

*Q. What was it like to share your partner’s thinking, and not your own, with the class?*

*Q. What’s interesting about sharing your partner’s thinking?*

*Q. What’s challenging about sharing your partner’s thinking? What might make it less challenging?*

**6. (If necessary, continue at the next lesson.) Write using sensory details.** Distribute paper and pencils and invite students to try writing a “Daybreak” poem (or story) of their own (for example, for their own neighborhood or town, or for another place they know well). Encourage them to use sensory details to help their reader imagine and feel the meanings they want to communicate.

 After the writing period, provide time for students to read their writing aloud to the class. Facilitate discussion, both in pairs and as a whole class, using the following questions.

*Q. What did you feel or imagine as you listened to [Socorro’s] poem? Turn to your partner.*

*Q. What words did you hear that helped you [have that image/feel that feeling]?*

*Q. What did your partner tell you about his or her thinking?*

*Q. What is one thing you enjoyed about talking with your partner about your thinking? Turn and tell your partner.*

 Close by giving partners an opportunity to thank each other by name for listening and sharing together today.

**Extension**

Invite students to share with the class examples of sensory details they encounter in their reading and what those details made them think and feel.

**OST Alignment**

To build on the SEL lessons taught during this academic lesson, OST providers can reinforce the importance of active listening in peer relationships, as well as identifying emotions. For example, an OST provider might say, “When you were reading ‘Daybreak in Alabama’ you had to really listen to what your partner was saying and be aware of what emotions were coming up for both you and your partner, let’s use those same skills as we work in partners during our activities here today.

**“A Country to Explore”**

**Middle School (6–8): Social Studies**

**Academic focus**

Students reflect on what they have learned about different countries and make a decision about another country they want to study as a group.

**SEL focus**

Students contribute responsibly to group work and make shared decisions. (SEL Core Competencies: Self-management, Social Awareness, Responsible Decision-making)

**Materials**

• Class world map and/or globe

• Copy of world map for each pair

• Paper and pencils for pairs and groups

**Before the Lesson**

• Students will work in groups of four in this lesson. Make sure they have had ample practice working successfully in pairs before having them work in groups.

• Over several days, read aloud books and other information about several different countries and cultures of the world. Include countries in Africa, the Americas, Asia, and Europe (and Australia—both a country and a continent).

• Pair students and give partners a few minutes to connect and get to know each other. (You may need to create a group of three.)

• Review (or teach) [“Think, Pair, Share”](http://live-schoolguide.pantheonsite.io/module/supportive-classroom-environment/#talk-to-your-partner) by explaining that in this strategy, you will ask a question, then give students a few quiet moments to think before talking. When you say, “turn to your partner,” they will turn to face each other and talk. When you signal by raising your hand, partners will finish what they are saying and turn their attention back to you. Have students practice before this lesson.

**The Lesson**

**1. Introduce the lesson.** Have partners sit together. Remind the students that they have been reading about different countries and cultures of the world. Referring to the class world map, ask and briefly discuss:

**Teacher Note**

This lesson is designed to begin a series of lessons in which students work in groups to study a chosen country.

*Q. What are some countries we’ve learned about recently?*

*Q. Where is that country? What are some things we’ve learned about that country?*

Explain that in the coming days, students will work in their groups to explore another country of their choice and then teach their classmates what they have learned about that country and its cultures.

**2. Identify countries of interest in pairs.** As you distribute paper and world maps to each pair, ask students to think about countries they might personally be interested in studying. Explain that you would like partners to talk about the countries they are interested in, agree on 4–5 countries that they would both want to study, and write the names of the countries down on paper. Ask and briefly discuss:

*Q. What are some interesting things you can talk about regarding your country to try to persuade your partner to agree to it?*

 Encourage partners to explain their reasons clearly to each other and be ready to “give and take” so both are in agreement in the end with their four choices. Have pairs create their lists.

**3. Combine pairs into groups of four.** Signal for attention. Explain that each pair will now share its list of countries with another pair in a group of four. The job of the group will be to agree on two countries that all group members would be interested in and willing to studying, and to write these down. The countries can be on one or the other the pair’s lists, or on neither list. Before having groups begin working, briefly discuss as a class:

**Teacher Note**

If students have difficulty suggesting strategies to reach agreement, you might suggest:

• Describing what’s interesting about a country in a way that gets others interested (e.g., the culture, history, climate, food, clothing, language, people).

• Agreeing to let go of your first choice if you get your second or third choice.

 • Suggesting countries that are not on either pair’s list.

*Q. What might be challenging about reaching agreement in a group of four?*

*Q. If your group doesn’t agree at first, what can you personally do to help your group reach agreement?*

*Q. Why is it important that everyone in your group contribute to this decision?*

**Teacher Note**

Try not to interrupt groups as they work. Intervene only if group members are having difficulty that they seem unable to resolve on their own.

 Have groups begin working. Circulate, observe, and assess.

**Class Assessment**

Observe groups as they work and ask yourself:

• Are all group members contributing responsibly to the work?

• Are groups able to reach agreement? If they have difficulty at first, are they able to try different strategies and persist until they come to agreement?

**4. Reflect on group work.** Collect the recorded countries from each group. Explain that you will look through the choices to make sure that each group has a different country to study, and that you will let them know their countries at the next lesson. Ask and discuss as a class:

*Q. What kinds of things do you look forward to learning about the country you will study?*

**Teacher Note**

During this discussion, encourage students to use the discussion prompts:

 “I agree with \_\_ because…”

 “I have a different idea than \_\_ because…”

 “In addition to what \_\_ said, I think…”

*Q. How did your group work together today? What difficulties did you have? What could you do next time to make things go more smoothly?*

*Q. What did you do contribute responsibly to your group’s work? How did that help your group?*

**Extension**

 Review the groups’ choices. For each group, assign one of the two chosen countries to study, trying to avoid having multiple groups working on the same country (although this might be unavoidable in some cases).

 Provide time in the coming days for groups to formulate questions, gather resources, and research their countries; then have them work together to organize their information and present it to the class. During this project, regularly revisit the SEL skills of reaching agreement and contributing to group work, using questions like those in this lesson to encourage practice and reflection.

OST Alignment:

To build on the SEL lessons taught during this academic lesson, OST providers may choose to design activities that require the same group work compositions. “Similar to your Social Studies classes lately where you’ve been working with a group to study a particular country, we’re going to be working in groups today as we do an activity. When we work in groups, what is important for us to remember about contributing responsibly and making shared decisions?”

**“What’s the Rule?”**

**High School (9–12): Mathematics**

**Academic focus**

Students explore patterns in sequences and informally explore the concept of function.

**SEL focus**

Students explain their thinking, understand their partner’s thinking, reach agreement, and persevere. (SEL Core Competencies: Social Awareness, Relationship Skills, Self-awareness, Self-management)

**Materials**

• Whiteboard or chart paper and a marker

• Copy of “What’s the Rule?” activity sheet for each pair

• Scratch paper and pencils for each pair

**Before The Lesson**

• Pair students and give partners a few minutes to connect and get to know each other. (You may need to create a group of three.)

• Review (or teach) “[Think, Pair, Share”](http://live-schoolguide.pantheonsite.io/module/supportive-classroom-environment/#talk-to-your-partner) by explaining that in this strategy, you will ask a question, then give students a few quiet moments to think before talking. When you say, “turn to your partner,” they will turn to face each other and talk. When you signal by raising your hand, partners will finish what they are saying and turn their attention back to you. Have students practice before this lesson.

**The Lesson**

**1. Introduce and explore patterns in sequences.** Have partners sit together. Ask the students to watch as you draw the following sequence where everyone can see it:

**Teacher Note**

Start with any sequence with an easily recognized pattern and then move to more complex patterns.

**∆, ∆∆, ∆∆, ∆∆∆, ∆∆∆, ∆∆∆, . . .**

Ask and briefly discuss:

*Q. What could come next in this sequence? Why do you think so?*

*Q. If four triangles is the next term in this sequence, how might you describe this pattern? What would be the next few terms?*

*Q. What is the next term is two triangles? What pattern might this sequence be following? What would be the next few terms?*

 Explain that a *pattern* is something that repeats or that happens in a predictable way. A *rule* describes how the pattern works. Erase the sequence of triangles and write the following sequence where everyone can see it:

**1, 2, 4, . . .**

Use “Think, Pair, Share” to have students discuss:

*Q. What are some ways you could continue this sequence?* (pause) *Turn to your partner.*

 After pairs have had time to think and talk, signal for attention and have a few volunteers share their thinking with the class. Facilitate a discussion using the following questions:

*Q. Do you agree or disagree with what [Maria and Lincoln] said? Why?*

**Teacher Note**

Possible patterns (and their rules) for the sequence 1, 2, 4,… could be:

• 1, 2, 4, 8, 16, 32,… (Double each term to get the next term)

• 1, 2, 4, 7, 11, 16,… (Add 1, add 2, add 3…)

• 1, 2, 4, 8, 16, 32,… (Each term is 2 raised to the position of the term minus 1; e.g., 20=1, 21=2, 22=4, 23=8, 24=16, 25=32…)

*Q. If the next two terms in the sequence were 8 and 16, what rule could the sequence be following? Given that rule, what would the next two terms be?*

*Q. If the next two terms were 7 and 11, what rule could the sequence be following?* (pause) *Turn to your partner.*

*Q. If the next two terms were 7 and 11, what might the next two terms in the sequence be?*

**2. Explain the “What’s the Rule?” activity.** Distribute a copy of the “What’s the Rule?” activity to each pair and ask a volunteer to read the directions aloud. Encourage the students to find more than one possible pattern for each sequence. Before having pairs begin, ask and briefly discuss:

*Q. It’s important that you understand your partner’s thinking, and that you both agree before recording your thinking on the activity sheet. What will you do to make sure you understand and agree with your partner’s thinking?*

**Teacher Note**

Keep this discussion moving by calling on just 1–2 students to respond to each question during the whole class sharing.

*Q. If you don’t understand or agree yet, what can you do?*

 Ask the students to keep in mind the things they talked about and explain that you will check in with them at the end of the lesson.

**3. Have pairs do the “What’s the Rule?” activity.** Have pairs begin working. As pairs work, circulate, observe, and assess.

**Teacher Note**

Limit intervening with pairs during this time to encourage partners to rely on their own thinking and work collaboratively. If pairs are stuck and need additional support to move ahead, prompt their thinking with questions like:

*Q. What pattern did you find?*

*Q. What would the next terms be, and how do you know?*

*Q. What is another possible pattern for this sequence? How might you describe the rule for this pattern?*

*Q. Do you understand and agree with your partner’s thinking? How do you know?*

**Class Assessment**

Observe pairs as they work and ask yourself:

• Are partners explaining their thinking and asking for clarification if they don’t understand each other?

• Are they agreeing before writing about each pattern?

• Do the patterns they describe fit the terms of a given sequence?

• Can they describe rules for patterns?

If you notice that many pairs are having difficulty, signal for attention and discuss the first couple sequences together as a class. You can also ask each pair to join another pair and discuss possible solutions in groups of four.

**4. Discuss as a class.** When most pairs have had time to work on most of the activity, signal for attention. For each sequence on the activity sheet, have a few volunteers use the whiteboard or chart paper to share a pattern they found, the rule for the pattern, and the next few terms of the sequence based on the pattern. Facilitate discussion, in pairs and as a class, by asking:

**Teacher Note**

During this discussion, encourage students to use the discussion prompts:

 “I agree with \_\_ because…”

 “I disagree with that idea\_\_ because…”

 “In addition to what \_\_ said, I think…”

*Q. Do you agree or disagree with what [Rashad and Antonio] shared and why?* (pause) *Turn to your partner.*

*Q. What questions could we ask [Rashad and Antonio] about their solution?*

*Q. Who else found the same pattern? Did you describe the pattern using the same rule? If not, what is another rule for (or way to describe) this pattern?*

*Q. What other patterns are possible for this sequence?*

**5. Reflect on the lesson.** Explain that students will have further opportunities to explore patterns and sequences. Help them reflect on their learning and work in pairs by discussing:

*Q. What’s easy or hard about working with patterns and sequences?*

*Q. What helped you persevere (stick to it) today? Why is it important to our lives that we practice and grow our perseverance?*

*Q. What are some examples of how you and your partner worked well together today?*

*Q. Was there a time when you didn’t understand or agree with your partner’s thinking? What strategy did you use?*

 Remind the students that it is their responsibility to make sure they understand each other’s thinking when they work in pairs. Encourage them to continue to practice asking for clarification, when needed, whenever they work with a partner.

**Extension**

 On a whiteboard or chart paper, invite pairs to share sequences they created for the last question on the “What’s the Rule?” activity sheet. Ask the class to work in partners to try to figure out the patterns, the rules underlying the patterns, and the next few terms in each sequence.

**OST Alignment**

To build on the SEL lessons taught during this academic lesson, OST providers can reinforce the importance of respectfully resolving disagreements with peers. As disagreements arise – or as a preventive measure – OST providers might recall how in class, students worked in pairs and had to navigate differences of opinion. While our disagreements may feel more personal or “bigger” outside of class, the same protocol and thought process for resolution can apply, etc.

**Partners’ Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**What’s the Rule?**

**Directions**: For each sequence below, look for a pattern. Together, write a rule to describe how the pattern works. Use the rule to add at least the next three terms to each sequence. If you find more than one pattern for a sequence, describe each one.

**1.** 1, 1, 2, 1, 3, 1, 4, 1, 5, 1, 6, 1, … \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2.** 1, 3, 5, 7, 5, 3, 1, 3, … \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3.** 1, 3, 7, 15, 31, … \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4.** 1, 4, 9, 16, 25, … \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**5.** Make up number sequence of your own. Give the first few terms and describe the rule for the pattern. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_