# CHANGING PATTERNS (LEVEL 1)

| Description | Learners will understand how patterns help us make sense of the very complex world and transform information and data into meaning. Learners will visually represent different patterns around them. |
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| **Leading Question** | How can patterns help us make sense of our world? |
| **Total Time Required** | 4 hours across five days |
| **Supplies Required** | Paper, colors, timer. |
| **Learning Outcomes** | - Identify different kinds of patterns on daily life<br>- Exemplify how meaning is connected to patterns<br>- Differentiate between data and information, and meaning |
| **Inspiration** | • Arvind Ranganathan<br>• Patterns Book<br>• https://artplusmarketing.com/using-patterns-to-make-sense-of-your-world-d8034650bd98<br>• https://www.mathnasium.com/examples-of-the-golden-ratio-in-nature |
| **Previous Learning** | None |

# DAY 1

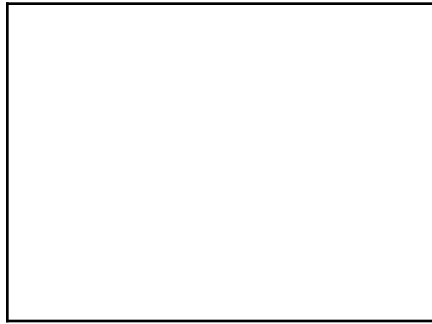Today, you will be discovering patterns in your life.

| Suggested Duration | Activity and Description |
|---|---|
| **10 minutes** | Patterns are things—numbers, shapes, images—**that repeat in a logical way**.<br><br>For example, every day, the sun comes out, then it leaves and the moon comes out. Or, for example, we follow the same path to go to the grocery store everyday. Also, the week has always the same number of days, and we work for some and rest for others.<br><br>Try to come up with a few examples. |

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| 30 minutes | **The Pattern Detective** |
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| | The purpose of this activity is for you to think about your own relationship to your life in terms of patterns. It is also a chance for you to share more about yourself! |
| | Go around your house and/or neighborhood/school/class and find examples of 3 patterns. For instance, look at flowers, trees, fruits, routines that you have, how your house is constructed, etc. |
| | Spend some time really searching so you are able to find diverse examples with rich and different attributes - a mixture of patterns that are beautiful, surprising, complex, curious, multifaceted, mathematical, and artistic, and that come from many different areas. |
| | For each of these 3 patterns provide: |
| | a. A visual image, sample, or rendering of the pattern. For this, you can use pencil, colors, or you can also use small stones, beans, sticks, whatever you are able to find.<br>b. An image of something that the patterns remind you of.<br>c. A name, one that you think is appropriately descriptive. For example, a pattern could be called "one circle after another one" or "many points clustered together." |
| | Remember that not all patterns are directly observable. For example, we can see the symmetry in a fruit (if you cut it in half, then both halves probably look the same), or we can see how tiles are arranged in the floor, but there are things that we can not "see". |
| | For example, we only see a pattern of day and night, after we have observed several days and nights. |
| | Challenge: try to also look for these kinds of patterns, and think about ways of "seeing" or representing things that we can't usually see. For example: |
| | Day – Sun<br>Night –Moon<br>Day – Sun<br>Night-Moon |
| | You can use this format to note your observations (You can be creative regarding how to show and arrange your observations) |

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Pattern #1

Name: _____

Visual representation:

What does it remind me of? (Draw something that the pattern reminds you of)

**Feedback.**
There are no right or wrong answers here! But it is still important for you to reflect on your work. Show your list to a peer (who has also done the exercise) or to a family member, who will look closely at what you wrote.
You will comment on each other's work using these prompts:
- **CLARIFY:** Are there ideas that the learner shared that need to be clarified or explained a little bit more?
- **CONNECT:** Can you identify a connection with the patterns or the ideas that the learner shared? Explain what that connection is. For example, the pattern might remind you of a place you've been or your experience might be connected to one of the parts of the system that the learner identified.
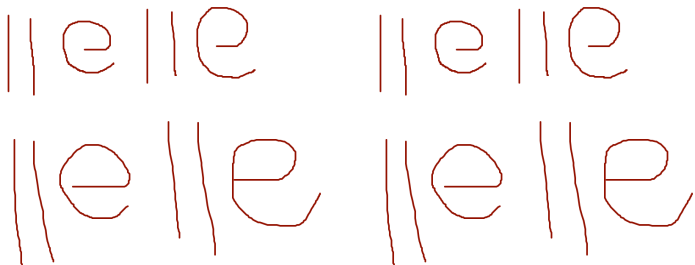
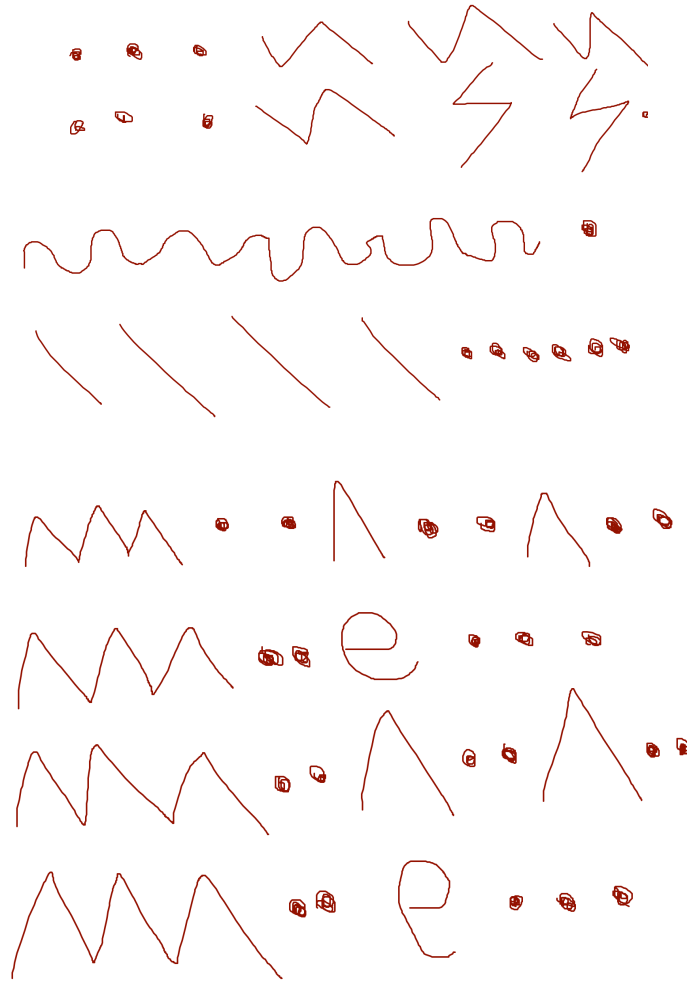| | ● **NEW IDEAS**: Did the learners' analysis of the patterns extend your thinking about patterns or give you a new perspective on something? If so, share how. |
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# DAY 2

Today you will begin to explore less observable patterns with routines, routes, sounds, music, movement, and your bodies. You will also explore ways of representing patterns.

| Suggested Duration | Activity and Description |
|---|---|
| **20 minutes to set up**<br>**5 min of reflection every night and morning** | Begin the day by setting up some sheets of paper as a diary to keep track and notes of the following things:<br><br>Fill the chart using this key:<br><br>I did= ✔<br><br>I didn't= ✖<br><br>Happened in the morning= (Draw a sun)<br><br>Happened in the afternoon= (Draw a moon)<br><br>Draw an emoji representing any other thought associated with the behavior or reaction. Since the idea is to find patterns, choose no more than three types of icons.<br><br>{table below} |

| | Day 2 | Day 3 | Day 4 | Day 5 |
|---|---|---|---|---|
| Did I lose my temper? | | | | |
| Did I have nighttime fears or nightmares? | | | | |
| Did I wake up rested? | | | | |

| | |
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| | Pay attention throughout the day and see if there is another behavior that we have not thought about, but that you would like to investigate. |
| **20 min set up + 20 min of dancing** | Music and Patterns. After setting up your diary, think about ways of understanding music and how it is related to patterns. Create your own movement and sound pattern taking into account the following keys:<br><br>A = (snap your fingers)<br><br>B= (clap your hands)<br><br>C= (stomp your feet)<br><br>D= (slap in thighs)<br><br>Example: if the keys are B,D,A,C, these movements should be: Clap, slap in thighs, snap, stomp….<br><br>The **choreography** that you create should be at least 10 keys long (i.e. it should contain 10 individual letter keys such as A, B, C etc.).<br><br>Explore more intentionally different types of patterns. |

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| | Rehearse the choreography. |
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| | If it is easier, instead of writing the keys, you can also draw and cut images representing the movement), rearrange them in different orders, and put them on the floor to follow. |
| | If you prefer, you are welcome to create your own keys and movements (and to make more than 4 keys as well). The activity can be made as complex as you are willing to do it. |
| | Reflect on your favourite songs and if you can identify the pattern in them. Which of the patterns that you made was your favourite? What made this your favorite? |
| | You can compose as many **choreographies** (sequence of movements) as you want! |
| | If possible, you can ask somebody else at home to recreate the pattern with you. |
| | Dancing, music, and rhythm are the results of sounds and tones that repeat themselves in different order. These are also patterns that are present in many of our lives! |
| | Reflect on how we don't actually see some patterns, like music, but that we can find ways to represent them. Also, spend some time thinking about how patterns are not only there: we don't only find them, we can also create them! |
| **20 minutes** | **Optional- Enrichment Activity (WhatsApp-Dependent).** Copy the following images on a sheet of paper and take a look at them: <br><br> ||e||e    ||e||e <br><br> ||e||e   ||e||e |

- What do you see? – Describe the images in detail (e.g. *"I see some symbols that look like the letter e"* or *"I see that those symbols appear in the first image and then again in the last one"*)
- What do you think is going on here? – Come up with all sorts of ideas (e.g. *"It looks like what someone who is learning to write will write,"* *"they look like letters in another language"*, etc.)

The images represent a song! Play the song :

● If video is available, watch this video:
//www.youtube.com/watch?v=MWbzRP5gJw4

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| | ● You can listen via WhatsApp in the following voice note: https://voca.ro/1dnr91Bu64wi<br><br>Try to follow with your fingers the patterns in the images that you just saw (part 2). The images are representing the rhythms of the song in different ways. Someone "translated" the patterns of rhythm to something that we can see. This is called a **Musicgram** and is very similar to how musicians "write" music.<br><br>Create your your own "Musicgram" for your favorite part of your favorite song in a sheet of paper! |

# DAY 3

Today you will learn about how to use patterns.

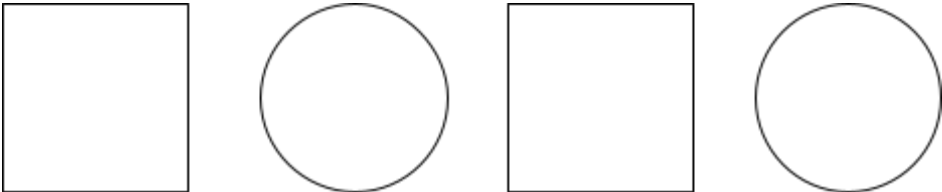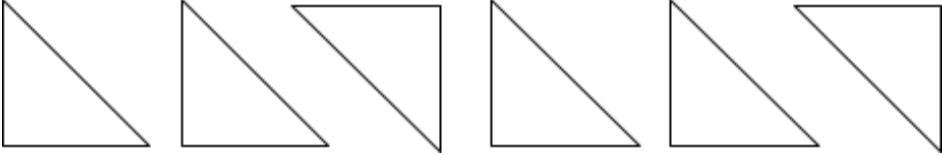| Suggested Duration | Activity and Description |
|---|---|
| **10 minutes** | Vision involves identifying patterns, like combining pixels. This was the inspiration for a drawing technique called pointillism. Famous painters, such as Georges Pierre Seurat and Vincent van Gogh used this technique. And it is also used in computers and screens.<br><br>Let's see how this works.<br><br>Decide on a design you would like to paint. This can be very simple such as a rainbow or flower.<br><br>Sketch that design with pencil. |
| **10 minutes** | Decide on the colors that your design will have (ideally, no more than three). So, for instance, you will use green for the stem of the flower, and pink for the flower.<br><br>Instead of filling the white space with traces, leave marks with your fingers until most of the space has been filled. You can explore with leaving darker and lighter marks with the same color and/or combining two similar colors/two shades of the same color for the same part of the drawing. |

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| | |
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| **5 minutes** | After you have finished, let the paint dry, and do this exercise ("Zoom in" Thinking Routine). Use their own drawing and ask the questions to a family member:<br><br>● Make a tiny hole in a sheet of paper and place it on top of your drawing. What do you see or notice? What is your hypothesis or interpretation of what this might be based on what you see or notice? |
| **5 minutes** | ● Use the same sheet of paper, but make the hole a bit larger. What new things do you see or notice? How does this change your hypothesis or interpretation? |
| **5 minutes** | ● Finally, without the paper, what do you see or notice? What is your hypothesis or interpretation of what this might be based on what you see or notice? |
| **5 minutes** | This process of "zooming out" that you just did with your drawings is called **"abstraction"** and patterns help us do this. An abstraction involves the synthesis of particular facts or data into one general theory or picture about something. Abstraction is the opposite of specification or staying at the level of the details. Patterns help us move away from specifics to understand what is repeating and in what way. Without patterns, we would not be able to understand what we see around us! |

# DAY 4

Today you will begin a more "mathematical" exploration of patterns and learn about sequences.

| Suggested Duration | Activity and Description |
|---|---|
| **5 minutes** | Here is one example of a geometrical pattern (a pattern that uses geometry):<br><br>Can you guess what shape comes next? |

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| | |
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| **5 minutes** | Here's another example:<br><br><br><br>Can you guess what shape comes next? |
| **5 minutes** | One last example:<br><br><br><br>Can you guess what line comes next? |
| **5 minutes** | And here are some examples of patterns with numbers:<br><br>1 1 1 1 1 1 1 1 1<br><br>Can you guess what number comes next? Of course! 1. This is a very simple pattern.<br><br>Let's try another one:<br><br>1 0 1 0 1 0 1 0 1 0 1 0 1...... What number comes next?<br><br>How about this one:<br><br>2 3 4 2 3 4 2 3 ............ What number comes next?<br><br>Design your own sequences (you can use shapes or numbers starting with number 1).<br><br>You can challenge family members or peers to guess the following number in the sequence. |

# DAY 5

Today you will learn that patterns can be changed!

| Suggested Duration | Activity and Description |
|---|---|
| | Awareness of the basic patterns that exist in our world will help you see what's happening around you in a different light. |
| | For example, if we see that whenever there are clouds, it is likely that it will rain, then we can expect that, if we see clouds, it is going to rain and we can then plan accordingly. |
| | But, most importantly, having an understanding of what might happen in a situation may give you the opportunity to create a different outcome than what you have seen before. |
| | Throughout the week, we have been keeping track of some behaviors in our diaries. Take a look at them and try to observe some emerging patterns. |
| | Use emojis to identify two patterns that you believe are emerging from your observations following this structure: |
| | "[emoji] <--> [emoji]" |
| | For example, you can say something like "When I ate chips late at night [with an emoji representing this], then I had nightmares [with an emoji representing this]." |
| | Are there "good" or "bad" patterns or habits? |
| | Let's "Zoom out." Think about the same pattern in the context of a month, and in the context of a year. Is this something that you might be able to observe over the course of this time? |
| | Brainstorm one idea to break or enhance the behavioral patterns that you identified. |
| | Draw a poster to remind yourself of how to break those or to encourage themselves to continue doing what you are doing correctly. You can use some |

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| | of the patterns that you observed on day one or pointillism design your posters. |
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## ASSESSMENT CRITERIA

- Final products:
- List of patterns:
    - o Learners presents a complete list of 3 patterns
    - o Each item in the list includes:
        - ▪ A visual image, sample, or rendering of the pattern.
        - ▪ A name, one that you think is appropriately descriptive
- Posters with three suggestions to improve their habits
    - o Learners are able to keep track of their behaviors over a week
    - o Learners are able to identify three patterns of behavior during the week.
    - o Learners brainstorm a concrete and actionable idea to improve their habits
    - o Learners design a creative poster

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