

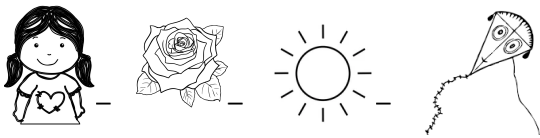
CODE LANGUAGES (LEVEL 3)

Description	Learners will explore different kinds of code languages like glyphs, sign language, braille, and numeric codes. They will create short (2-3 sentences) theme-based riddles, encode them, and challenge others to decode and solve them. They will also provide hints and codebreakers for assistance.
Leading question	Can you encode and decode like a cryptologist?
Subjects covered	English, Mathematics, Social and Emotional Learning
Total time required	40-60 minutes a day for 4 days
Resources required	paper, pencil/pen, cotton, flour dough/playdough
Learning outcomes:	<p>By the end of this project, learners will be able to:</p> <p>Knowledge-Based Outcomes:</p> <ol style="list-style-type: none"> 1. Create a riddle in a code language of their choice. 2. Deduce word meanings from contextual and visual clues. 3. Identify and code 5 CVC words. 4. Identify rhyming words and use them in the riddle. 5. Write short and meaningful sentences on a given topic. 6. Identify numeric patterns 7. Use numeric patterns to write in a code language. <p>Social and Emotional Learning Outcomes:</p> <ol style="list-style-type: none"> 1. Objectively review their work and make improvements. 2. Reflect on their learning journey and identify ways to improve. <p>21st Century Skill Outcomes:</p> <ol style="list-style-type: none"> 1. Use creativity in framing the riddle. 2. Work collaboratively to code and decode the riddles. 3. Communicate effectively using different forms of code language.
Previous Learning	Ability to understand and speak simple English
Supervision required	Medium

Day 1 -

Today, you will learn about glyphs as a code language and identify the theme for your riddle.






Time	Activity and Description
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15 minutes	<p>Describe a Code Language Can you guess what these signs mean?</p> <p>Note: Show gestures for five commonly used words in sign language.</p> <ul style="list-style-type: none"> - Refer to the appendix section for signs to show some commonly used words in the Indian sign language. - Ask learners to decode each sign. Encourage them to make guesses and explain how they guessed what each sign meant. - Many of you may have guessed the signs correctly even though you do not know sign language. That's because based on what you know about the gestures I showed, you tried to guess the meaning of the unknown signs. This is called breaking the code or decoding! - Throughout this project, we will be creating and breaking codes but before we do that, let's understand what a code language is. - A code language is like a secret way of talking or writing where we use symbols, letters, or rules to hide our message. It's like a fun puzzle others must solve to understand what we are saying. - In this project, you will create a riddle in a code language you develop and then encourage others to decode it. Your riddles should be 2-3 sentences long with rhyming words. You will also create 2-3 hints and a code breaker to help others crack the code you created. - The Leading Question for this project is: Can you encode and decode like a cryptologist? (A <i>cryptologist</i> is a secret message expert who figures out coded messages that others can't understand. They are like puzzle solvers.)
15 minutes	<p>Write a Letter Using Glyphs</p> <ul style="list-style-type: none"> - Do you know which language people used when they began writing? - Instead of alphabets, they used something called glyphs. These glyphs were pictures that represented words. These drawings were often done on stone walls/cave walls where the earliest humans lived since paper had not been invented back then. <p>Note: Share an example of a sentence written using glyphs. For example, 'A girl named Rose went out in the sun to fly a kite.' can be written as:</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> - Glyphs are symbols which if understood correctly help people communicate. It's a code language! - You will now write a short letter of 3-4 sentences using glyphs for a friend/family member. Tell them what you like the most about them (e.g., <i>their qualities, handwriting, or any other feature</i>). - Share this letter with them and encourage them to decode it. Check if they understood your glyphs correctly.

	Tip: For learners who may struggle to write a letter, instruct them to represent words or phrases using glyphs.
10 minutes	<p>Decide the Theme of the Riddle</p> <ul style="list-style-type: none"> - In this project, you will create a riddle in a code language that you develop and then encourage others to decode it. Do you know what riddles are? <p>Note: Show some examples of riddles. Refer to the appendix section for these examples.</p> <ul style="list-style-type: none"> - Now, think of a theme for your riddle. It could be something related to your personal life, your hobbies, your favourite games or cartoons, things, people, plants, or animals around you. - Write down the theme that you chose in your notebook or a paper.
At-home activities	Share the glyph letter/phrases with your family member/friend for whom you wrote it and encourage them to decode it. Check if they can decode the glyphs correctly.

Day 2

Today, you will learn two new forms of code languages that help deaf and blind people communicate - sign language and braille. You will also work on your riddles.

Time	Activity and Description
10 minutes	<p>Introduction to Sign Language</p> <ul style="list-style-type: none"> - Let's explore two more forms of code language - sign language and Braille. - Put some cotton in your ears or cover your ears with your hands, and try listening to what is being said. <p>Note: Whisper something in a very low voice.</p> <ul style="list-style-type: none"> - Could you hear what I said? - How would you communicate with someone who cannot hear? - We can use sign language to communicate with people who cannot hear. Sign language is a way of communicating using hand movements, facial expressions, and body gestures instead of spoken words. <p>Note: Show a few commonly used signs in the sign language:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>hello</p> </div> <div style="text-align: center;">  <p>thank you</p> </div> <div style="text-align: center;">  <p>welcome</p> </div> <div style="text-align: center;">  <p>namaste</p> </div> <div style="text-align: center;">  <p>sorry</p> </div> </div> <p>Refer to the link given in the Appendix 1 section to see how the above words are signed.</p> <p>Select a sentence from a storybook of your preference. Convey it through gestures and signs, then invite a friend or family member to guess the meaning based on your expressive signs. If you don't have a storybook, you can write down sentences and act them out.</p>
15 minutes	<p>Introduction to Braille</p> <ul style="list-style-type: none"> - Close your eyes and read a paragraph from a book/ magazine/ newspaper.

	<ul style="list-style-type: none"> - Could you read with your eyes closed? How do blind people read and write? - A special language called Braille helps blind people read. It uses raised dots on paper that they can touch with their fingers to read. - Using flour dough or playdough, make a word. Ask a friend/family member to decode the word. <p>Note: <i>If flour dough or playdough is not available, learners can write the word and poke holes in the paper. The friend/family member can flip the page and feel the raised dots to decode the word.</i></p>
15 minutes	<p>Create the Riddle</p> <ul style="list-style-type: none"> - Last time, you had decided on the theme of your riddle. Now, you will work on creating a riddle on your chosen theme. - You must use rhyming words in your riddle. Do you know what rhyming words are? - They are words that sound the same at the end, like "cat," "hat," "rat," "mat," etc. Rhyming words make riddles fun to read/hear. - Can you identify the rhyming words in this riddle: "I am long and green, a favourite to crunch, put me in a salad for a tasty lunch. Which vegetable am I?" (<i>crunch, lunch</i>) - Now that you know what rhyming words are, follow the steps given below to create your riddle: <ol style="list-style-type: none"> 1. Within the theme that you chose, identify a topic on which you want to create the riddle. For example, if you chose the theme of flowers, which flower do you want to create the riddle on? 2. List the features of that object/person without revealing too much. For example, if the riddle is about a cucumber, you can say "it is long, healthy, tasty, and green" etc. 3. Think of words that rhyme with the features. 4. Put together the riddle using meaningful sentences that end with rhyming words. Make sure your riddle has at least 2-3 sentences. 5. You can end the riddle with 'Who/What am I?'
At-home activities	Play the game of charades - act out the name of a film/ story and let your family members/ friends guess it.

Day 3 –

Today, you will explore numeric codes and write down some CVC words in a code language. You will also convert your riddle into a code language of your choice.

Time	Activity and Description
15 minutes	<p>Introduction to Numeric Codes</p> <ul style="list-style-type: none"> - How can you write something in a code language that others cannot decipher easily? - You could use glyphs, sign language or Braille. Today, we will explore one more way of writing codes - using numbers.

	<ul style="list-style-type: none"> - Write a code for the word 'BAD', if A=1, B=2, C=3, D=4 and so on. (<i>Correct answer: 2.1.4</i>) - Now, identify 5 CVC words around you and write them using the code if A=1, B=2, C=3, and so on. <p>Note: <i>If learners do not know what CVC words are, explain it to them. CVC words combine a Consonant (C) - a Vowel (V), and a Consonant (C). For example, CUT, FAN, BAT, etc.</i></p> <ul style="list-style-type: none"> - Share your coded words with a family member/friend and ask them to decipher the codes. - There can be different kinds of numeric codes. For example, every letter is +2 from the previous letter e.g. A = 2, B= 2+2=4, C=4+2=6 etc. Or every letter is +10 from the previous number e.g. A=10, B=20 etc.
20 minutes	<p>Code the Riddle</p> <ul style="list-style-type: none"> - Think of which code language you would want to use to code your riddle. You can use glyphs, sign language, Braille (using flour dough or by poking holes in the paper), or numeric codes. - Write the riddle in your chosen code language. Also, remember to write a hint to break the code and the codebreaker on two small chits of paper.
5 minutes	<p>Self-Review</p> <ul style="list-style-type: none"> - Review your riddle and the code you created using the following questions: <ol style="list-style-type: none"> 1. Do you find the riddle interesting and fun to solve? 2. Is it appropriately difficult - neither too difficult nor too easy? 3. Has the riddle been coded correctly? 4. What could be done better to improve the riddle or the way it has been coded?
At-home activities	<ul style="list-style-type: none"> - Based on your self-review, improve the riddle and the code if needed. - Think of a message or thought you believe in and write it using a numeric code. Ask family members/friends to decode it.

Day 4 –

Today, you will share your coded riddle with your family or community. Family/community members will decode the riddle and find the answer. You will also reflect on your learnings through this project.

Time	Activity and Description
10 minutes	<p>Preparation</p> <ul style="list-style-type: none"> - Today, you will present your coded riddle to your family members and ask them to decode it. - Create a scorecard for the competition. For example, 100 points for decoding and finding the answer to the riddle without using hints or the codebreaker, 75 points for using 1 hint, 50 points for using 2 hints, 25 points for using the codebreaker, and so on.

	<ul style="list-style-type: none"> - Check your coded riddle, hints, and codebreaker are correct and ready to be shared.
20 minutes	<p>The Riddle Competition</p> <ul style="list-style-type: none"> - Ask your friends/family/community members to sit together. - Explain the rules of the riddle competition. For example, you will get 15 minutes to solve the riddle. You can use hints and the codebreaker if you are unable to solve the riddle and answer it, but with each hint or codebreaker, your score will be deducted. - Explain the scorecard. - Give time to solve the riddle. - Declare the winner by calculating their scores using the scorecard.
10 minutes	<p>Reflection</p> <ul style="list-style-type: none"> - Reflect on your experience of doing this project using the following question prompts: <ol style="list-style-type: none"> 1. What did you enjoy the most? What surprised you? What did you find the most challenging? 2. What would you do differently if you could do this project again?

Additional enrichment activities:	<ul style="list-style-type: none"> - The learners can be introduced to more complex forms of code language including complicated numeric and alphabet patterns. - They can design multi-level games using code language with increased complexity at every level.
Modifications for simplification	<ul style="list-style-type: none"> - If learners are unable to create riddles, give them riddles and guide them to code and decode them. - Encourage learners to use English as much as possible in the activities they do. However, do not restrict them to English. Allow them to think and discuss in their mother tongue.

ASSESSMENT CRITERIA

A majority of my students were able to:

- Create a 2-3 sentence long riddle.
- Write 2 hints and a code breaker to decode the riddle.
- Write a short (3-4 sentences) letter using glyphs and decode it.
- Communicate and understand basic sign language.
- Identify and code 5 CVC words using a numeric code.

APPENDIX

Appendix 1:

Examples of Signs for Commonly Used Words in Indian Sign Language (To Be Used on Day 1)

Refer to this website to understand the signs used for common words -

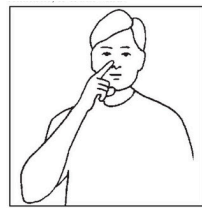
<https://www.youtube.com/watch?v=FArg-G1lsRw&t=97s> and

<https://www.youtube.com/watch?v=rAEmSQj7hKg&list=PLUuOqp8QaNB0IG-GOV8wzKFsjL7v3iL>

IG



Father/man



Mother/woman



Black



White



Circle

Appendix 2

Examples of Riddles (To Be Used on Day 1)

1. I am yellow and curved, a smile on your plate. Peel off my skin to enjoy what's great. What am I? (Banana)
2. In *biryani* and *pulao*, I add flavour with glee. Long and slender, guess the veggie in me! (Beans)
3. I bring the heat, the sun shining so bright. Beaches and ice creams, everything feels just right. Which season comes to your mind? (Summer season)
4. With bat and ball, on the pitch we stand tall. One-day or test, we give it our all. What sport has us enthralled? (Cricket)

Appendix 3

Reference link for Indian Sign Language (To Be Used on Day 2)

Refer to this link to know how to express some common words in sign language:

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