CODE LANGUAGES

Ages 6 to 7 (Level 1)

Description:	Learners will discover the purpose of language and begin to get more familiar with the evolution of language as well as codes. They will explore invisible ink, glyphs, numerical codes, braille, and sign language to finally design their own code letter
Leading question:	Can you write a letter in a hidden code language?
Age group:	**6** – 7 years
Subjects:	Language Arts, Numeracy
Total time required:	5 hours over 5 days
Self-guided / Supervised activity:	Low Supervision
Resources required:	Paper, Pencil, Eraser, Dough

Day	Time	Activity and Description
1		Learners will begin by exploring and understanding the history of languages, purpose of languages and how languages have evolved over time.
	10 minutes	Learners will think of how many languages they can speak, read and write and think about words in those languages: - Write or say out loud the same word in the different languages that they speak. For example: Water in English, Paani in Hindi and Maa' in Arabic. - What are the most common words used in your language? Think of the top 5 words you use and write or say them in the 2 – 3 languages you know? - Write the same alphabets in multiple scripts, for example: what would the letter A, B, C be in the other language's script
	10 minutes	Learners will end this activity designing 5 – 10 of their own alien or "made-up" words. These words can represent an emotion or action that they do not think there is a word for in the languages that the learner currently knows. Learners can use a table like the one below to develop the "new words". Be creative!!! e.g., <table><tr><td>Scenario</td><td>New Word</td></tr><tr><td>Being angry because you are sleepy</td><td>Angrepy</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>

		Learners can share the new words created with their friends and family and ask them to use them as new vocabulary.
	20 minutes	Learners will begin to understand why written language was developed as they explore oral language through the game of Chinese whispers
		Chinese Whispers:
		● Learners will listen to a story from someone in the family (please make sure this is not a common story that people know from before).
		● They will re-narrate this story to another family member.
		● The third family member will narrate this story forward to another family member.
		After, the last person has finished narrating the story to the last person. Ask the last person to tell the story to everyone in the hearing of the person from whom the story originated.
	15 minute	Ask the learner(s) to reflect:
		- What do you notice about the story being told at the end of the game? Is it the same or different from the one that was told at the beginning of the game?
		- How can one avoid such a scenario where the story keeps changing each time it is told? How would writing it down solve that problem?
	10 minutes	**Reflection:** Educator/parent meets with the learner(s) and have them reflect on the following questions:
		- What have you learnt from today's activities?
		- What do you remember the most from today's activities?
		- What do you still have some questions about?
		Educator/parent tries to respond to any questions the learner(s) may still have on the day's lesson.
2	5 minutes	Today, learners will learn about one of the earliest forms of written language i.e., glyphs and write sentences using glyphs
		Ask the learner: Imagine there is no written language and there are no words, how would you share a message or a story with a friend?
		Possible answers:
		- Sing the story and record it
		- Draw pictures of the objects in the story
		- etc

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	20 minutes	Say to the learner(s): We will now explore some of the older written languages. When people first started the written language, they used something called glyphs – pictures to represent words. These drawings were often done on stone walls to represent the object you want to tell the other person about. Ask the learners: Why do you think these drawings were made on stone walls? Possible answers: there was no paper, walls were visible to everyone in the family, etc. For example: A girl, Luna went out in the sun to fly a kite. It began to rain, and her kite got wet and torn so Luna was sad. Learners will make glyphs of 10 common words. Learners should think of how they can draw these words so that everyone can understand them. It is important that this drawing also be easy to copy or replicate - Two weather elements e.g., Rain and Wind - Two animals e.g., Dog and Parrot - Two places e.g., Home and School - Two people e.g., Mother and Friend - Two objects e.g., A Toy and Car Learners will write a short 3 - 5 sentence letter in glyphs e.g., a letter to their father to tell him they love him.
	10 minutes 30 minutes	Learners will play a game of Pictionary with their family members: Preparation: - Get a sheet of paper and cut 10 cards in a shape of your own choice. - Compile a list of words of items/animals/objects to be drawn on the cards e.g., Flower, Horse, Computer etc. - 2 -3 teams with each team having 2 -3 members - Paper, pencils and erasers or a board and chalk to draw - A paper with a points column for each of the teams Rules: - One team member from each team will pick 3 cards - The same team member will draw a picture for each of the words on each of the words on the cards without writing the word on the card. - The other team member will guess the word based on the picture - Each team gets a point for each of the pictures whose words are guessed right, the team can get as many points as the words they guess, with the maximum being 3 points per round.

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	10 minutes	Learners will add the total after playing one or two rounds of the game and compare the larger number to decide who won the game Optional: To have an extension of the game, the cards can have full sentences that have to be drawn and guessed using glyphs. **Reflection:** Educator/parent meets with the learner(s) and have them reflect on the following questions: - What have you learnt from today's activities? - What do you remember the most from today's activities? - What do you still have some questions about? Educator/parent tries to respond to any questions the learner(s) may still have on the day's lesson.
3	15 minutes	Today the learners will explore how language works for those with compromised vision or total blindness and similarly with those that are unable to hear Ask the learner: Imagine your ears are not working, how would you be able to communicate with others? How would you know what others are telling you or when others are speaking to you? Possible answers: - Read their lips to know they are saying - Write down what I want to tell the others - Guess what they are saying - Etc Ask the learner to try it (if possible), they can put some cotton or block their ears with their hands tightly and ask family members to whisper to be able to relate with the deaf and then try to see if they can understand what the other person is saying to them. Ask learners, do you know any person with hearing disability? How do they communicate with others? . Explain to the learner: Sign language is the visual-manual language of those with hearing issues – people make words and letters using their hands. Examples:

	10 minutes	eat / food bathroom help finished more play For those who do not have visual tools – Pretend you are eating food that is often the sign for food and eating. Hold both hands up palms facing out that shows finished etc. Learners will create signs for 5 of the most common words they use. Learners can use a table like the one below: | Word	Sign
---	---
Good	👍
	30 minutes	They can now try and do a sentence by acting it out / signing it out. To easily do this, - learners can first write out the sentence in words - Create a sign for each of the words in the sentence - Act out the sentence using the signs for each of the words created Learners can play a game of Charades to understand communication by signing and acting out. Preparation: - Get a sheet of paper and cut 10 cards in a shape of your own choice. - Compile a list of 10 words/items/objects e.g., Flower, Bird, Hungry etc. - Write the words/items/objects on each of the cards - 2 or 3 teams with each team having 2 or 3 members - Paper, pencils and erasers or a board and chalk to draw - A paper with a points column for each of the teams Rules: - One team member from each team will pick 3 cards - The same team member will act each of the words on the cards

	15 minutes	- The other team member will guess the word based on the acting - The team member acting out the words is not allowed to use verbal clues Each team gets as many points as the words they guess, with the maximum being 3 points per round Learners will add the total after playing one or two rounds of the game and compare the larger number to decide who won the game Ask the learners: Imagine that you cannot see, how would you recognize things? How would you read a book/story or even recognize words of a story you have been told?
	10 minutes	Learners can simulate this experience by putting a blind fold on their eyes and then they can have someone else around the house. They can make them touch a specific object and then ask them to identify what the object is. Learners can then research either on the internet or by asking their parents/adults on how people with visual impairment communicate with each other and read in real life. Possible answers: People with visual impairment listen to audio messages and have a special way of writing called braille. Braille is a form of written language in which characters are represented by patterns of raised dots that are felt with the fingertips. People can read it by touching the letters with their fingertips. Learners will then explore the concept of Braille, which is a written language that the blind can read through touching the letters
	10 minutes	Learners will use flour dough or playdough to make letters and words. They can ask family members to close their eyes and feel the letters and tell them what word/letters they have formed. Similarly, learners can also write letters and poke holes in the paper and flip it to touch the protruding parts and "feel out" the letters **Reflection:** Educator/parent meets with the learner(s) and have them reflect on the following questions: - What have you learnt from today's activities? - What do you remember the most from today's activities? - What do you still have some questions about? Educator/parent tries to respond to any questions the learner(s) may still have on the day's lesson.
4	5 minutes	Ask the learner: Have you ever wanted to tell someone something that you do not want anybody else to read or understand? How do you usually do that?

	15 minutes	Potential answer: Yes, a secret. Usually whisper it into their ears. Or write it on a piece of paper that can be hidden somewhere no one can find it. Say to the learner: Now, imagine you can create a language that only and the person you are talking to can understand. That is what code language is about. Today you will explore code numerical languages. Learners will explore numerical substitutions for the different letters of the alphabet to create a numerical code language. Imagine if A = 1, B = 2, C = 3 and so on. How will you write the word BAD i.e. B=2, A=1 and D = 4 so we get 2.1.4? Learners will write the entire code e.g., what letters = which number. Learners can use a table like the one below to write out their numerical codes Table below
	10 minutes	Literacy extension: Learners will then write a 2 - 3 short sentence letter to their best friend or parent using this code. (Tip: You can first write out the sentences in the usual words and then convert them into the new numerical code).
	30 minutes	For older learners, you can create a different numerical code, some ideas of variations include: - Every letter is +2 from the previous letter e.g. A = 2, B= 2+2=4, C=4+2=6 etc. - Every letter is -3 from the previous letter e.g. Z = 100, Y= 100-3=97, X=97-3=94 - Only even or odd number - Every letter is a number that ends with 10 e.g. A=10, B=20 etc. Learners will make their own code, write a sentence in code and the codebreaker that shares the code
	10 minutes	**Reflection:** Educator/parent meets with the learner(s) and have them reflect on the following questions: - What have you learnt from today's activities? - What do you remember the most from today's activities? - What do you still have some questions about? Educator/parent ensures to respond any questions the learner(s) may still have on the day's lesson
5		Learners will write a secret code of their own choice today.

The table referenced in the 15 minute section:

A	B	C	D	E
1	2	3	4	5
F	G	H	I	J
K				

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	10 minutes	Learners will start by finding out how secret codes are applicable and used in people's daily lives. They can interview their parents or an adult at home or in their community. Learners can use the following question during this discovery process: - What are some of the areas in real life where people use secret codes? - What are some of the common secret codes used by people? Possible answers: - Secret codes are used by our military and diplomatic forces to keep confidential information from unauthorized eyes. - Businesses also send data that has been encoded to try and protect trade secrets and other secret information - People use secret codes (e.g., passwords, patterns etc) to prevent unauthorized people from accessing their emails, smart phones, laptops, and other electronic devices - Secret codes are also used in money safes/vaults where people keep their money at the banks and at people's homes
	40 minutes	Learners will now hide two objects of their choice anywhere in their home and have family members find these using their own code oral language and code written language - To find the first hidden object, learners will give family members an oral code cue that could be made-up words and / or signed out for family members. For example, for an object hidden in the bed, they can sign out sleeping and bed for family members to guess that it is hidden in the bed - To find the second hidden object, learners will give family members a written code clue, learners can use numerical substitution or glyphs or both. For example, for an object hidden under a kitchen counter – they can draw spoons and knives as a glyph to give family members a hint Learners will ask family members to break these codes and then find the two objects they have hidden
	10 minutes	Overall project reflection: Learners will reflect on the power and evolution of language using the 3-2-1 technique. Reflect on: - *Three things you have learned from all the today's activities* - *Two things you found interesting* - *One thing that you still have a question about*
		- Creativity in developing their own alien words, glyphs and signs

Assessment Criteria:	- Clarity of writing and drawings in letters - Critical thinking in playing the games and ciphering and deciphering words - Ability to write code breakers especially for the "numerical patterns"

Topics/concepts covered	- History and evolution of language - Creation of new words and language - Sign language - Glyphs - Braille - Creating a new code language - Secret codes and their application in real life - Creativity - Critical thinkingCommunication skills
Learning outcomes:	- Understanding of the history and evolution of language especially from oral to written language - Understanding the different types of language for those with visual or auditory impairments - Creating and understanding the use of code language and secret codes. - Learn about how secret codes are applicable and used in real life. - Enhance the learner's critical thinking, creativity and communication skills
Required previous learning:	- Knowledge of the alphabet - Knowledge of numbers 1-30
Inspiration:	None
Additional enrichment activities:	None
Modifications to simplify the project tasks if need be	Learners can focus on the instructions and cues given and not design their own codes

Ages 8 to 10 (Level 2)

Description:	Learners will discover the purpose of language and begin to get more familiar with the evolution of language as well as codes.

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		They will explore invisible ink, glyphs, numerical codes, braille and sign language to finally design their own code letter
Leading question:		Can you write a letter in a hidden code language?
Age group:		8 – 10 years
Subjects:		Language Arts, Numeracy
Total time required:		5 hours over 5 days
Self-guided / Supervised activity:		Low Supervision
Resources required:		Paper, Pencil, Eraser, Dough, Lemon Juice, Cotton and Matchstick, Fruit, Salt, Water

Day	Time	Activity and Description
1		Learners will begin by exploring and understanding the history of languages
	10 minutes	Learners will begin to think of how many languages they can speak, read and write and: - Write the same word in the different languages that they speak? For example: Water in English, Paani in Hindi and Maa' in Arabic. What are the most common words used in your language? Think of the top 5 words you use and write them in the 2 – 3 languages you know? - Write the same word in multiple scripts, for example: your name and explore if there are any alphabets missing in the different scripts to be able to pronounce words accurately
	20 minutes	Learners will find someone who is knowledgeable about their local language. This could be one of their parents, an adult in the community, distant relative, grand parent, or an influential person in their community/country. Learners will then plan to interview this person either physically or through phone using some of the questions below: ● What is the history of our local language? How did it come about? ● What is the purpose of a language? Potential answers: Language is - a means of communication among people, - the culture of the people who speak it. How many words do you have for something common, or something only found where you are from? For example: In many parts where there is a lot of rain and flooding there are multiple words for this - for social interaction e.g., gossip, conversation etc. ● How has our local language evolved or changed over time? What are some of the new words that have been added to the language and what do they mean?

Potential answer: Do you know that language is also evolving with us adding words on a regular basis e.g., the word jungle was added into the English vocabulary, as the UK does not have tropical jungles? The word "screen time" and "cyber security" were added as this new concept based on the development of internet and computers

Learners will end this activity designing 5 – 10 of their own alien or "made-up" words. These words can represent an emotion that they do not think there is a word for in the languages that the learner currently knows. Learners can use a table like the one below to develop the "new words". Be creative!!! e.g.,

Scenario	New Word
Being angry because you are sleepy	Angrepy

10 minutes

Learners will begin to explore how oral language evolved and the importance of writing:
- Different languages can be written in different scripts or are often written with the same script. Either these languages have similar roots or backgrounds (e.g., Hindi, Marathi or Gujarati is written in Devnagari or Hindi script since all these languages originate from Sanskrit) Swahili is used in the English or Roman scripts since it used to be an oral language

Chinese Whispers:
- Learners will listen to a story from someone in the family (please make sure this is not a common story that people know from before).
- They will re-narrate this story to another family member.
- The third family member will narrate this story forward to another family member.

15 minutes

After the last person has finished narrating the story to the last person, ask the last person to tell the story to everyone, including the person from whom the story originated. Ask the learner(s) to reflect:
- What do you notice about the story being told at the end of the game? Is it the same or different from the one that was told at the beginning of the game?
- How can one avoid such a scenario where the story keeps changing each time it is told? How would writing it down solve that problem?

	10 minutes	Rhyming Verse: Learners will now convert the same story in verse and give it a beat. learners can reflect on how much easier it is for you to remember. Often our old stories were told in verse to help you remember it
	5minutes	**Reflection:** Educator/parent meets with the learner(s) and have them reflect on the following questions: - What have you learnt from today's activities? - What do you remember the most from today's activities? - What do you still have some questions about? Educator/parent ensures to respond to any questions the learner(s) may still have on the day's lesson.
2	5 minutes	Today, learners will learn about one of the earliest forms of written language i.e., glyphs and write sentences using glyphs Ask the learner: Imagine there is no written language and there are no words, how would document a story to share with a friend? Possible answers: - Sing the story and record it - Draw pictures of the objects in the story - etc.
	25 minutes	Say to the learner(s): We will begin to explore some of the older written languages. When people first started the written language, they used something called glyphs – instead of alphabets, which was pictures to represent words. These drawings were often done on stone walls before paper was invented For example: A girl, Luna went out in the sun to fly a kite. It began to rain, and her kite got wet and torn so Luna was sad. Learners will make glyphs of 10 common words. Learners should think of how they can draw these words so that everyone can understand them. It is important that this drawing also be easy to copy or replicate - Two weather elements e.g., Rain and Wind - Two animals e.g., Dog and Parrot - Two places e.g., Home and School - Two people e.g., Mother and Friend - Two objects e.g. A Toy and Car

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	15 minutes	Learners will write a short 5 sentence story in glyphs of your own choice. Hint: It may be easier to first write out the story in words and then you write it out using the glyphs.

	30 minutes	Learners will play a game of Pictionary with their family members:
		Preparation:
		  - Get a piece of paper or several pieces of paper and cut out 20 cards
		  - Compile a list of words of objects/items/things to be drawn onto the cards e.g. Flower, Horse, Computer etc.
		  - Form 2 or more teams with each team having 2 or more members
		  - Paper, pencils and erasers or a board and chalk to draw
		  - A paper with a points column for each of the teams
		Rules:
		  - Select one team member from each team will pick 5 cards
		  - The same team member will draw each of the words on the cards without writing the word on the card.
		  - The other team member will guess the word based on the picture
		  - Each team gets a point for each of the pictures whose words are guessed right, the team can get as many points as the words they guess, with the maximum being 5 points per round
		Optional: To have an extension of the game the cards can have full sentences that have to be drawn and guesses using glyphs

	10 minutes	**Reflection:** Educator/parent meets with the learner(s) and have them reflect on the following questions:
		
		  - What have you learnt from today's activities?
		  - What do you remember the most from today's activities?
		  - What do you still have some questions about?
		
		Educator/parent ensures to respond any questions the learner(s) may still have on the day's lesson

3		Today the learners will explore how language works for those with compromised vision or total blindness and similarly with those that are unable to hear

	5 minutes	Ask the learner: Imagine your ears are not working, how would you be able to communicate with others? How would you know what others are telling you?
		
		Possible answers:
		  - Read their lips to know they are saying
		  - Write down what I want to tell the others
		  - Guess what they are saying
		  - Etc

	5 minutes	Ask the learner to try it (if possible), they can put some cotton or block their ears with their hands tightly and ask family members to whisper to be able to relate with the person with hearing disabilities and then try to see if they can understand what the other person is saying to them. Ask learners, do you know any person with hearing disabilities? How do they communicate with others? (Definition: A person with hearing disabilities is someone who cannot hear.) Learners can ask their parents/an adult at home if they have never interacted with a deaf person or they do not know how deaf people communicate. Answer: Sign language. Sign language is the visual-manual language of those with hearing disabilities – people make words and letters using their hands. Examples:
	15 minutes	For those who do not have visual tools – Pretend you are eating food that is often the sign for food and eating. Hold both hands up palms facing out that shows finished etc. Learners will think of signs for 5 of the most common words they use. They can now try and do a sentence by acting it out / signing it out

Word	Sign
Good	

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30 minutes	Learners can play a game of Charades to understand communication by signing and acting out. Preparation: - 20 cards with words to be acted / signed out e.g., Flower, Bird, Hungry etc. - 2 or more teams with each team having 2 or more members - Paper, pencils and erasers or a board and chalk to draw - A paper with a points column for each of the teams Rules: - One team member from each team will pick 5 cards - The same team member will act each of the words on the cards without using verbal clues - The other team member will guess the word based on the acting Each team gets as many points as the words they guess, with the maximum being 5 points per round.	
5 minutes	Ask the learners: Imagine that you cannot see, how would you recognize things? How would you read a book/story or even recognize words of a story you have been told? Learners can simulate this experience by putting a blind fold on their eyes and then they can have someone else at home make them touch a specific object and then ask them to identify what the object is.	
10 minutes	Learners can then research either on the internet or by asking their parents/adults on how people with visual impairment communicate with each other and read in real life. Possible answers: People with visual impairment listen to audio messages and have a special way of writing called braille. Braille is a form of written language in which characters are represented by patterns of raised dots that are felt with the fingertips. People can read it by touching the letters with their fingertips. Learners will then explore the concept of Braille through the following experiments:	
20 minutes	Learners will use flour dough or playdough to make letters and words. They can ask family members to close their eyes and feel the letters and tell them what word/letters they have formed. Similarly, they can write letters on a thick paper and make different words and have family members close their eyes and feel these letters and spell out the words	

15

	10 minutes 10 minutes	Alternatively, Spelling and writing each letter take a long time, so instead learners can think of each letter being represented by a different number of small holes that can be felt. These holes can be made by poking them into a paper with a pencil/pen tip/safety pin e.g., the letter A has one hole, the letter B has two holes one on top of the other, the letter E as two columns of holes etc. Learners can see the appendix for how the actual braille language looks like, in case they need some ideas. Learners can write a word in their "braille" language. Learners will create a cheat sheet to show which letter has how many holes in what pattern. Learners can ask family members to "decode" this by feeling the holes and looking at the cheat sheet. **Reflection:** Educator/parent meets with the learner(s) and have them reflect on the following questions: - What have you learnt from today's activities? - What do you remember the most from today's activities? - What do you still have some questions about? Educator/parent ensures to respond any questions the learner(s) may still have on the day's lesson
4	5 minutes 10 minutes	Today learners will explore code languages. Ask the learner: Have you ever wanted to tell someone something that you do not want anybody else to read or understand? How do you usually do that? Potential answer: Yes, a secret. Usually whisper it into their ears. Or write it on a piece of paper that can be hidden somewhere no one can find it. Say to the learner: Now, imagine you can create a language that only and the person you are talking to can understand. That is what code language is about. Today you will explore code numerical languages. Learners will explore numerical substitutions for the different letters of the alphabet to create a numerical code language. Learners will develop a code If A = 1, B = 2, C = 3 and so how will you write the word BAD i.e. B=2, A=1 and D = 4 so we get 2.1.4. Learners can use a table like the one below to write out their numerical codes for the different letters of the alphabet. {table below}

A	B	C	D	E
1	2	3	4	5
F	G	H	I	J
K				

	15 minutes	Learners will write an entire sentence with this code Now create a different numerical code, some ideas of variations include: - Only even or odd number - Skip every number ending with 7 - Use increments of 2, 3, or 5 etc. e.g., if you use table 3, A is 3, B is 6 and so on - Make the vowels the first 5 prime numbers (2, 3, 5, 7 and 11. A prime number is an integer, or whole number, that has only two factors — 1 and itself. Put another way, a prime number can be divided evenly only by 1 and by itself. Prime numbers also must be greater than 1) - All numbers divisible by 2 and 6 Learners will make their own code, write a sentence in code and the codebreaker that shares the code
	15 minutes	Literacy extension: Write a letter with invisible ink: Tell the learner to imagine that they have been on a secret pirate mission to find a treasure. After they have found the treasure. They now need to write a secret letter with invisible ink informing them that they have found the treasure and where they found it. Instructions: - Put some lemon juice into a cup and dip a cotton ear bud in this as ink (if there is no cotton ear bud put some cotton at the tip of your pencil or a matchstick) - Trace a message on a paper with the lemon juice. - Leave the paper to dry up. Once the paper dries learners will not be able to see the message. - Send the message over to your parent In order to see the message, the parent/adult needs to hold the paper on something hot e.g. hold it on a hot bulb or run an iron over it (but not a steam iron) *Please be careful when using the hot objects. The letters will begin to appear in a lightly dark / burned color.
	10 minutes	Another way to read the lemon juice message is to put salt on the drying juice. After a minute, wipe off the salt and then use a wax crayon to reveal the message. Alternatively, the learners can write the letter to their parents revealing that they found the treasure and where they found it using the new numerical code developed above in the previous activity. The science behind the experiment: The message discolors before the rest of the paper gets hot enough to do so. When you wrote your message using the lemon juice, carbon-based compounds in the juice were absorbed into the paper's fibers. Heat breaks down these compounds

and releases the carbon. When the carbon came into contact with air, it oxidized. One effect of oxidation is that things turn a darker color.

Learners will explore the effects of oxidation as sometimes this does not need heat to occur e.g. leave a peeled bite of apple, banana or pear on a plate for a while. The fruit will start to look brown due to the air – learners can experiment with:

- Different types of fruit and different solutions to note the differences and fill out the table below

	~~Fruit~~	~~Air~~	~~Lemon Juice~~	~~Saltwater~~	~~Water~~
~~1~~	~~Apple~~	~~Learners will write their observation of oxidation here~~			
~~2~~					
~~3~~					

~~Optional: Learners can try to reverse the oxidation process by placing some copper coins in a water and vinegar solution. They will notice that this makes them shinier because of the effect of vinegar on removing the copper oxide on them.~~

~~Learners will write the steps and explanation for invisible ink for someone to understand and conduct the experiment~~

Reflection: Educator/parent meets with the learner(s) and have them reflect on the following questions:

- What have you learnt from today's activities?
- What do you remember the most from today's activities?
- What do you still have some questions about?

Educator/parent ensures to respond any questions the learner(s) may still have on the day's lesson

10 minutes

5		

Learners will write a secret code of their own choice today.

20 minutes

Learners will start by finding out how secret codes are applicable and used in people's daily lives. They can interview their parents or an adult at home or in their community. Learners will internet access could also search for the information on the internet. Learners can use the following question during this discovery process:

- What are some of the areas in real life where people use secret codes?
- What are some of the common secret codes used by people?

Possible answers:

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		- Secret codes are used by our military and diplomatic forces to keep confidential information from unauthorized eyes. - Businesses also send data that has been encoded to try and protect trade secrets and other secret information - People use secret codes (e.g., passwords, patterns etc) to prevent unauthorized people from accessing their emails, smart phones, laptops, and other electronic devices - Secret codes are also used in money safes/vaults where people keep their money at the banks and at people's homes
	30 minutes	Learners will hide six objects of their choice anywhere in their home and have family members find these using their own code oral language and code written language - For the code oral language, learners will make one code to find object 1 using alien or made-up words. To find object 2, learners will sign out the clue to family members - For the code written language: For object 3 learners can use "braille, for object 4 they can use numerical substitution, for object 5 they can use glyphs and for object 6 they can use invisible ink" Learners will ask family members to break these codes and then find the six objects they have hidden
	10 minutes	Overall project reflection: Learners will reflect on the power and evolution of language using the 3-2-1 technique. Reflect on: - *Three things you have learned from all the today's activities* - *Two things you found interesting* - *One thing that you still have a question about*
Assessment Criteria:		- Creativity in developing their own alien words, glyphs and signs - Clarity of writing and drawings in letters - Understanding demonstrated when sharing the scientific experiment of oxidation - Critical thinking in ciphering and deciphering - Ability to write code breakers especially for the "braille" and "numerical patterns"

Topics/concepts covered	- History and evolution of language - Creation of new words and language - Sign language - Glyphs

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	- Braille
	- Creating a new code language
	- Secret codes and their application in real life
	- Creativity
	- Critical thinking
	Communication skills
Learning outcomes:	- Understanding of the history and evolution of language especially from oral to written language
	- Understanding the different types of language for those with visual or auditory impairments
	- Creating and understanding the use of code language and secret codes.
	- Learn about how secret codes are applicable and used in real life.
	- Enhance the learner's critical thinking, creativity and communication skills
Required previous learning:	None
Inspiration:	None
Additional enrichment activities:	None
Modifications to simplify the project tasks if need be	Learners can focus on the instructions and cues given and not design their own codes

Appendix

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