TEACHER'S PROJECT NOTES

3 ENTREPRENEURSHIP
EMPLOYABILITY
EDUCATION

PLAYFUL PROJECT-BASED LEARNING | TERM 3 LIFE SKILLS PROJECT

basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

Read to Lead
A Reading Nation is a Leading Nation

2030 NDP

GRADE R

Dear Teacher

Reducing the extremely high levels of youth unemployment is E³'s compelling goal and is at the heart of the E³ Playful Project-based Learning (PPBL) approach. The outcome of this programme is to equip learners with solution-seeking mindsets so they can achieve one, or more, of the three E's - become Entrepreneurs, follow a path into higher Education or become Employed.

Foundation phase learners are many years away from leaving school and finding their way in the big, wide world. They are the lucky ones because if they are exposed to an educational approach that is engaging, interesting and relevant, they are sure to leave school well equipped to participate in the modern economy.

So, what educational approach stimulates learners' engagement and interest and equips them with relevant skills and competencies? The answer is Playful Project-based Learning (PPBL).

The E³ PPBL Foundation Phase projects have at their core a play-based approach as it is through play that children's curiosity, motivation and lifelong love for learning is activated. The PPBL projects are designed to bring maximum fun and learning to the classroom – for teachers and learners. Each project is like an onion and contains layers and layers of learning. When implementing the projects you will:

- Bring the CAPS to life and realise its intended outcomes.
- Promote thinking, connection and empathy – critical competencies for a changing world.
- Encourage problem-seeking and problem-solving skills.
- Stimulate the holistic development of each learner.
- Foster a lifelong love of learning.

At the end of each project we hope learners have had such a great experience that they keep coming back for more.

We hope you enjoy unlocking play in your classroom and encouraging a solution-seeking mindset in your learners.

Good luck and remember to have fun!

The E³ team

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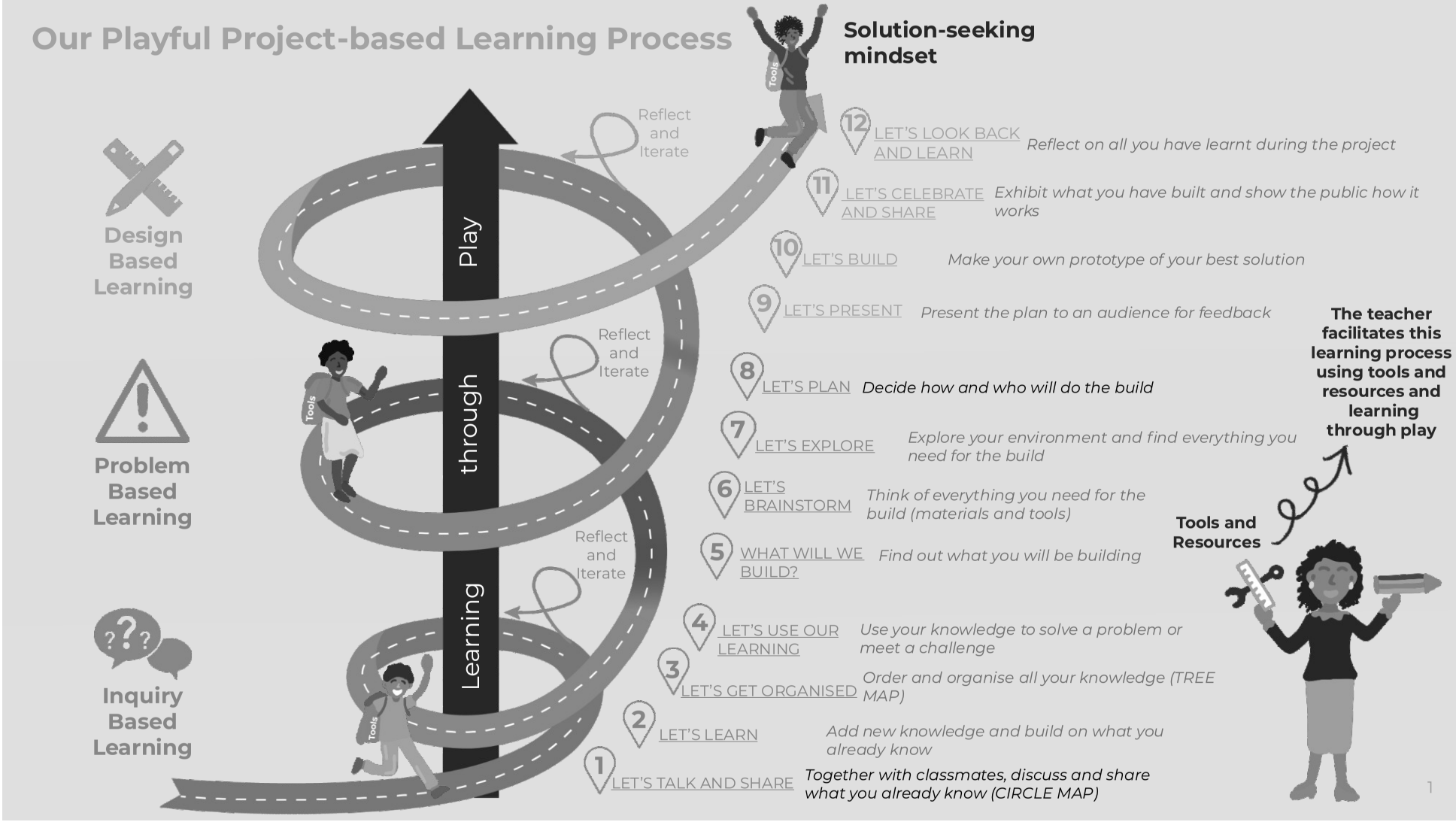
Our Playful Project-based Learning Process



COMPETENCIES FOR A CHANGING WORLD

"Thriving in today's fast changing world requires breadth of skills rooted in academic competencies such as literacy, numeracy and science, but also including such things as teamwork, critical thinking, communication, persistence, and creativity." (*Skills for a Changing World: Advancing Quality Learning for Vibrant Societies McGivney E. , Winthrop W. 2016*)

E³ has focused on three competencies, Thinking, Connection and Empathy all of which are unlocked and learnt through the Playful Project-based Learning process. This unlocking and learning is designed to be experiential i.e. the learning is in the doing. Activities within each project constantly urge learners to think, connect and empathise. This tree map shows the competencies in more detail.

Competencies for a changing world

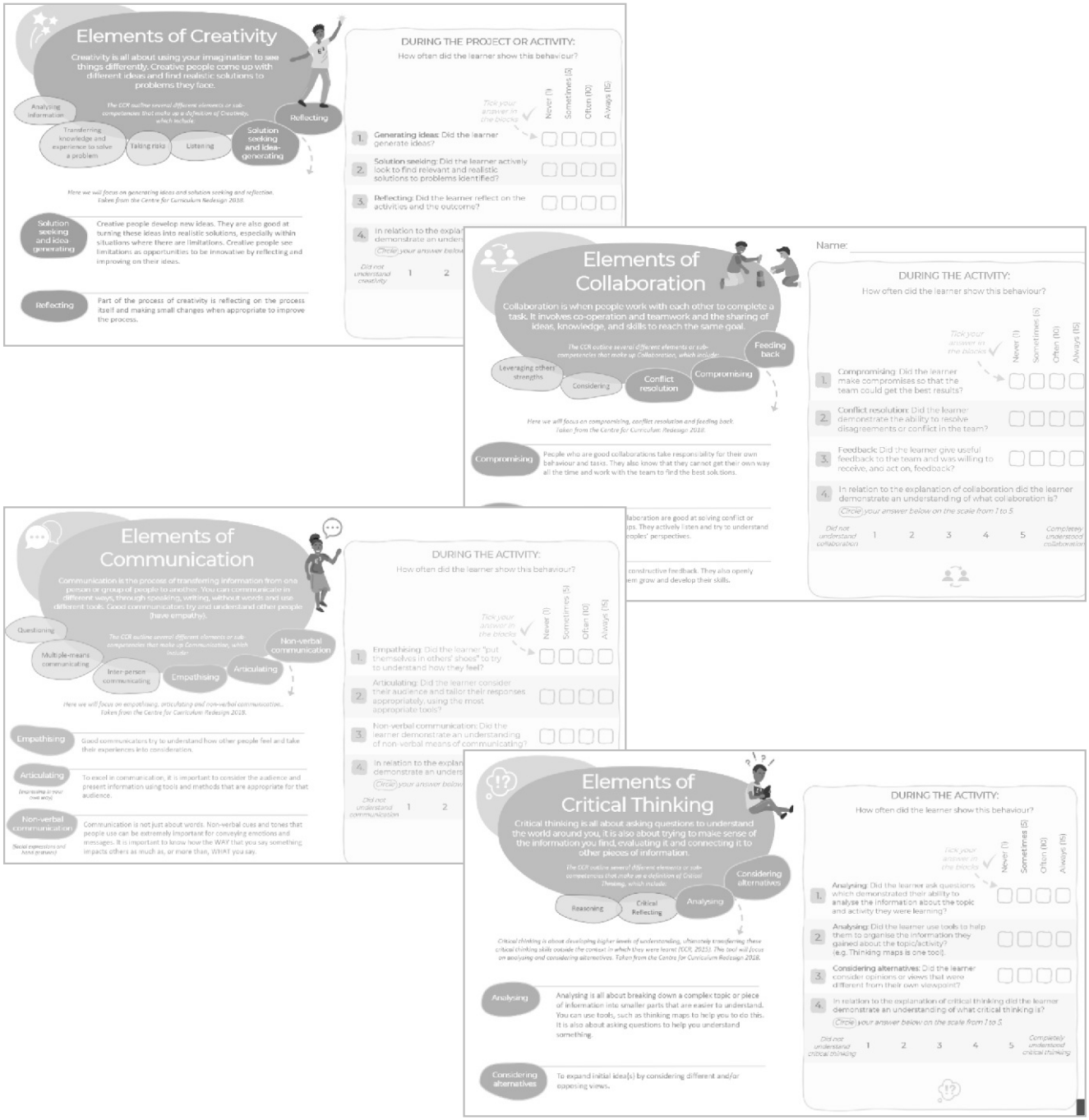
Character	Connection	Thinking
Citizenship Are we helpful to others?	**Collaboration** Can we learn together?	**Critical thinking** Are we thinking clearly?
Curiosity Do we want to learn more?	**Communication** Can we understand and be understood?	**Creativity** Are we thinking in new ways?
Resilience Do we ever give up?	**Empathy** Do we try to understand how others feel?	**Reasoning** Does our thinking make sense?

It's easy to forget about competencies in the busyness of a school day. Making a competency spinner is a fun and easy way to keep engaging with these essential behaviours. You, or better still, your learners can make competency spinners. Keep a big spinner on the wall. Spin it weekly to see what competency to focus on – and acknowledge when you see these behaviours in your learners. They will catch on quickly and start to recognise the various competencies in their peers and most importantly in themselves.

MEASURE WHAT YOU TREASURE: COMPETENCIES FOR A CHANGING WORLD

The Playful Project-based Learning approach is being implemented to better equip learners to cope in an rapidly changing world outside of school. Being equipped means creating opportunities where learners can develop competencies such as Connection, Communication and Thinking that contribute to a solution-seeking mindset. This changing approach to teaching and learning must be supported by a shift in mindset towards what we assess and measure. It is no longer enough to only assess CAPS content, we need to also be looking for and acknowledging behaviour and actions that reflect competency-based behaviour.

To guide you as you start on this journey of learning a competency checklist called **Measure what you treasure: Competencies for a changing world** has been included in the Teacher's Resource Pack. This will focus your observations and assist your rating of learners' competency development.ments that, collectively, characterise what playful learning looks like in South African classrooms.



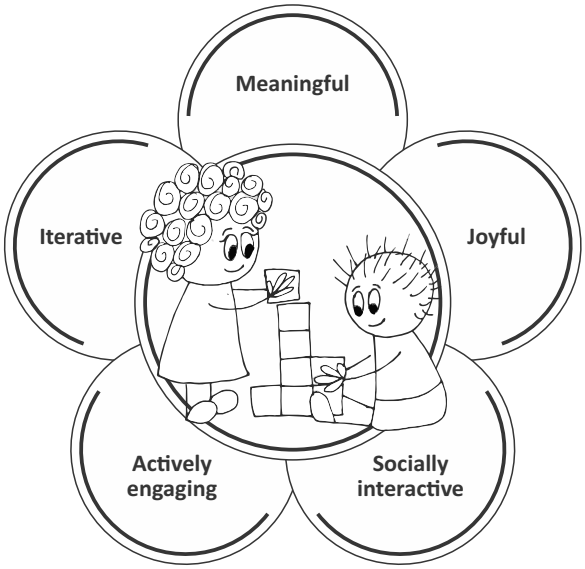
WHAT IS SO SPECIAL ABOUT S.P.E.C.I.A.L.?

It's no secret that humans learn best through play. When we are enjoying a task, even if it is extremely challenging, we are likely to become deeply engaged in the process, and ultimately achieve a positive outcome.

What does playful learning look like?

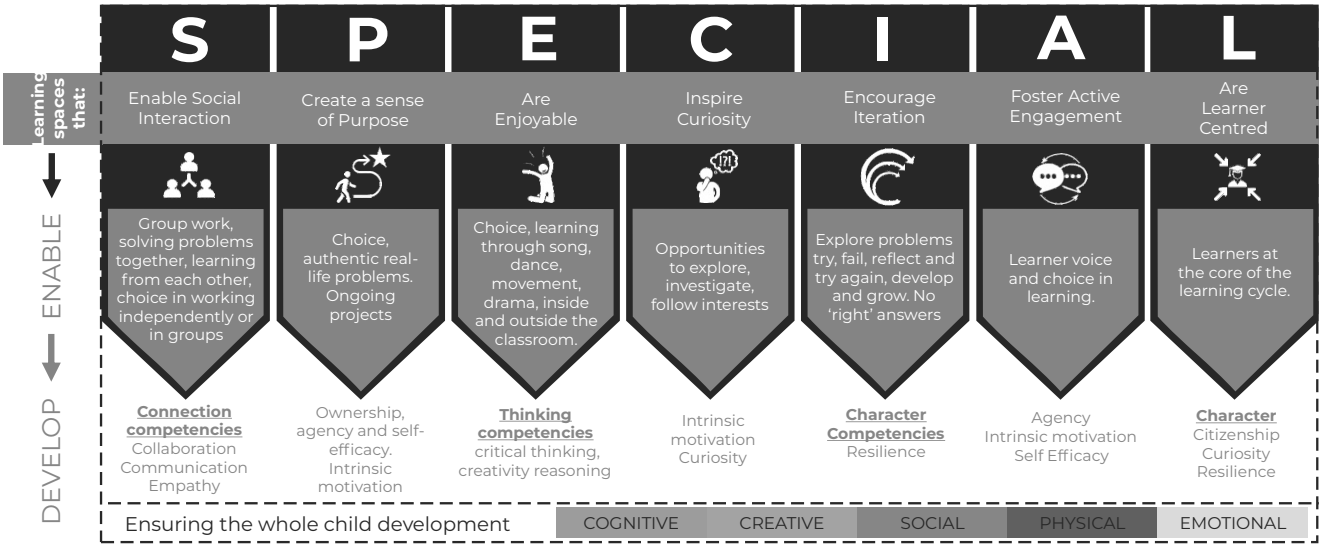
The Lego Foundation, (http/www.legofoundation.com) highlights five characteristics of playful learning. If the activities experienced by learners are **meaningful, joyful, socially interactive, actively engaging** and **iterative** they can be considered playful.

Being deeply committed to bringing out the PLAY in the Playful Project-based Learning process, E^3 has used these five characteristics and added two unique elements that, collectively, characterise what playful learning looks like in South African classrooms.



What does play look like in South Africa?

The 7 Essential Characteristics of Playful Project-based Learning



Challenge yourself: Create a S.P.E.C.I.A.L. banner for your classroom. Reflect on it through the day. If even one characteristic is evident in your learners then you can be sure you have started to create a positive and playful learning environment.

Grade R project summary

Inquiry-based Learning: *is an active learning method that involves learners asking questions about a topic, triggering learners curiosity and engagement in a topic*

Inquiry - based Learning

1. LET'S TALK AND SHARE — *Think about what you already know*
   Learners discuss and share what they already know about the topic of water.
2. LET'S LEARN — *Building on what you already know and add new knowledge*
   Learners are introduced to new information using a picture to add to their prior knowledge of water.
3. LET'S GET ORGANISED — *Order and organise all your knowledge (TREE MAP)*
   Learners classify things in the picture that go together and use a tree map to make their thinking visible.
4. LET'S USE YOUR LEARNING — *Use your knowledge to solve a problem or meet a challenge*
   Learners participate in an experiment. They test and categorise a variety of objects to find out what floats and what sinks. Findings are presented as a tree map.

Reflect and Iterate

Problem-based Learning: *Learners work in teams to formulate complex, real-world problems, and propose possible solutions. Real world problems are the tool for learners to investigate and develop their understanding of the CAPS curriculum.*

Problem - based Learning

5. WHAT WILL WE BUILD? — *Find out what you will be building*
   Learners are introduced to the project which is to build boat that can float and carry a light load.
6. LET'S BRAINSTORM — *Think of everything you need for the build (materials and tools)*
   Learners brainstorm what they might need in terms of material and tools, to build their boats. They refer to the experiment to make sure they are thing about things that float.
7. LET'S EXPLORE — *Explore your environment and find everything you need for the build*
   Learners explore for example, their classrooms, school grounds, and homes for the materials they need. These must be largely found materials and items.
8. LET'S PLAN — *Decide how and who will do the build*
   Learners plan and sketch a design or make a prototype of their boats.

Reflect and Iterate

Design-based Learning: *Learners produce solutions to complex problems by designing, building, and testing prototypes (a "prototype") that solve some of the problems learners identified in the problem phase.*

Design - based Learning

9. LET'S PRESENT — *Present the plan to an audience for feedback*
   Learners present their plans and designs to their peers for feedback and iteration.
10. LET'S BUILD — *Use your knowledge, materials and tools to build the project*
    Learners build their boats in line with their iterated plan, using all the materials they collected.
11. LET'S CELEBRATE — *Exhibit what you have built and show the public how it works*
    Learners exhibit their boats to the pubic and answer any questions about the boat building process. They compete to see which boat can carry the heaviest load without sinking.
12. LET'S LOOK BACK AND LEARN — *Reflect on all you have learnt during the project*
    Learners reflect on the process of the project using a set of reflection questions to guide their thinking.

Reflect and Iterate

S Social Interaction
P Purpose
E Enjoyment
C Curiosity
I Iteration
A Active Engagement
L Learner centred

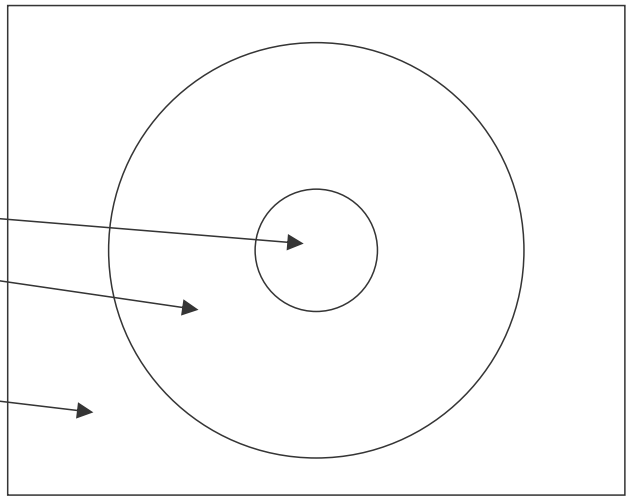
THINKING MAPS: MAKING THINKING VISIBLE

Thinking maps are a simple yet highly effective tool that are wonderfully versatile and can be adapted to suit many ages and contexts . There are eight types of thinking maps, but only two types are used in the Foundation Phase projects, the Circle Map and the Tree Map. (More information on Thinking Maps is available in the Teachers Resource Pack.)

Circle Maps

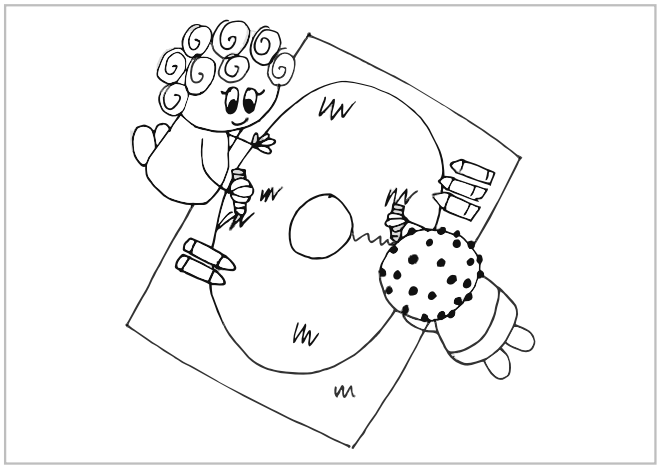
How to use them

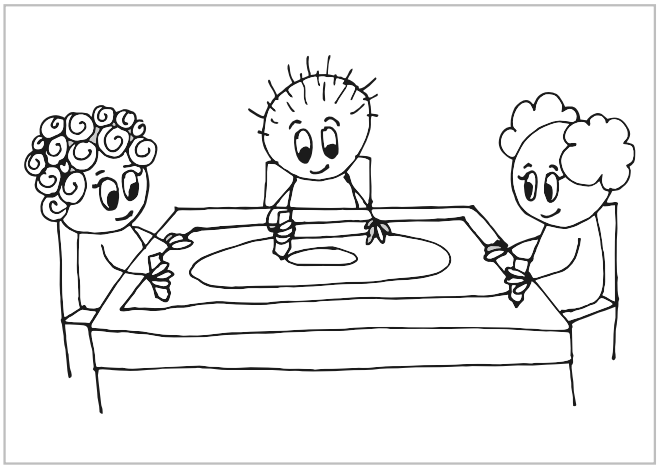
- Write the topic in the centre
- Write/draw what you already know about the topic in the big circle
- Write/draw how you know what you know in the rectangle

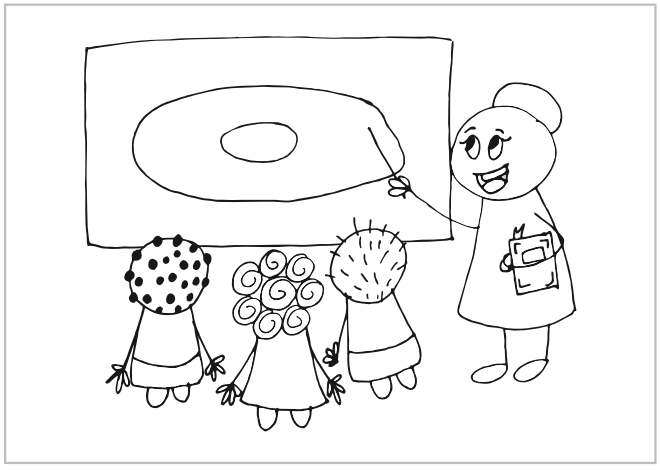


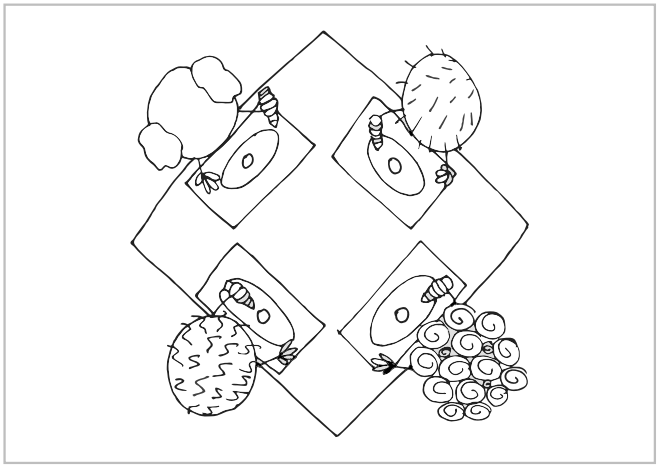
When to use them

Circle maps are used whenever you want to capture brainstorm-like activities. They are used in the first step of almost all the E³ projects where learners think, discuss and share what they already know about a topic and then write or draw this knowledge onto the map. This is a way of establishing learners' prior knowledge. Here are four ways you could use a circle map in your classroom.





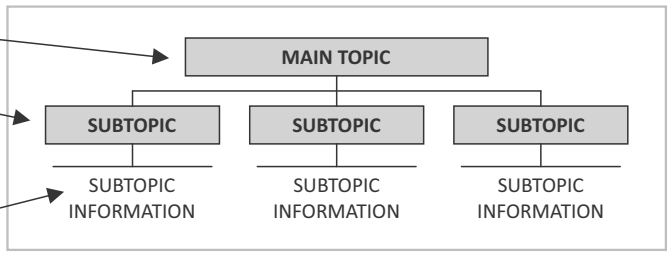




Tree Maps

Tree Maps are used to organise information from a circle map activity into conceptually similar groups.

- The main topic goes here
- The subtopics go under the main topic (There can be as many subcategories as learners can think of)
- Information relevant to the subtopic is listed here



Although the Thinking Map templates are available for printing, it is great when learners draw their own. In this way they don't depend on a worksheet, but learn a portable skill they can use at home.

CAPS ALIGNMENT

Grade R Life Skills: Beginning knowledge, personal and social well-being.
Term 3. Topic: Water. *Can learner demonstrate knowledge of creatures that live in water, how we use water daily and why it's important to save, describe water using the senses and distinguish between objects that float and sink.*

1	2	3	4	5
Learner is unfamiliar with many aspects of water except the basics i.e., to drink or use to wash. Learner names one or two underwater animals but cannot answer any questions about them. Learner struggles to describe water from a sensory perspective as vocabulary is limited.	Learner enjoys exploring water through the senses. Learners understanding about the use and value of water is expanding as learner reflects on role of water in own life. Learner names a few animals that live under water but is eager to learn more. Learner is still learning about objects that float or sink.	Learner explains role and importance of water in daily routine. Learner distinguishes between animals that live on land and in water and explain why people cannot live under water. Learner can test and classify objects that float and sink.	Learner is curious about water and enjoys exploring water through the senses and through play. Learner names many underwater creatures and explains how they are different from humans. Learner differentiates between floating and sinking and explains that heavy objects usually sink.	Learner has an excellent grasp of many aspects of water due to independent exploration. Learner explains value of water in own and other's lives. Learner classifies underwater creatures i.e., those with scales or shells. Learner asks complex questions such as how ships float.

PROJECT PLANNING AND PREPARATION GUIDELINES

These are some guidelines to help you prepare for implementing the project.

PROJECT PLANNING AND PREPARATION CHECKLIST	
Collect and store found and recycled materials.	☐
Ensure learners have the DBE Grade R integrated workbook 3.	☐
Gather any resources you already have, and that your learners can contribute, to create a theme table or display about water.	☐
If possible, get hold of small toy plastic animals.	☐
Plain sheets of paper (per group).	☐
Decide how you want to use the thinking maps and make and copy accordingly.	☐
Have a place, such as a project portfolio, where learners can store their thinking maps.	☐
Diarise a date when the “Float your boat” exhibition will take place. Invite lots of people and make it a true celebration.	☐
Plan your groups in advance and place learners together strategically. If group work is unfamiliar, then practise collaboration and group work skills through games and shorter activities.	☐
Think about a classroom management strategy. Decide on rules and that make the classroom an enjoyable learning space for everyone.	☐
Have clear safety rules for learners when learning around water.	☐
You will need at least one container like a bucket with water to test things that float.	☐
If possible, get some food colouring to mix into the water.	☐

THE JOURNEY: STAGE 1

INQUIRY-BASED LEARNING

STEP 1

Let's talk and share

"The child's body is the starting point of all learning experiences"

1. In this step learners will explore water through their senses, so some containers of water need to be available. We will also use circle maps in a physical, concrete way before transferring to paper.
2. Arrange learners into one big circle or a few smaller circles to represent circle maps.
3. In their circles, they need to explore water through their senses and describe its feel, taste, smell, look and sound. They can think creatively and imagine what would change water's feel, taste, smell, look and sound.
4. We can take water for granted so take the discussion further and encourage learners to explain how they have used water during the day to show how important it is in our lives.
5. Take the circle map into the representational and by drawing a circle map on a large piece of paper and placing it on the board. Write down what the learners share about water on the circle map so they can see their spoken words turn into written words which supports sound/letter association.

Teaching tip: Concrete First

Concrete, Representational, Abstract (CRA) is a stage approach often used for learning maths but can be used to learn anything new. It is an essential approach to take with young learners.

***Concrete:** this means being hands-on and touching and feeling physical objects or manipulatives.*

***Representation:** the physical object or manipulatives are represented by, for example, a drawing.*

***Abstract:** the drawing is 'translated' into words, numbers or symbols.*

NOTEPAD

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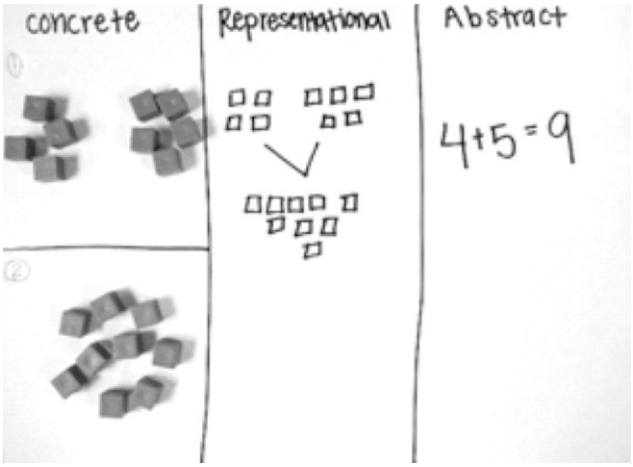
Note your reflections here:



STEP 2

Let's listen and learn

1. Refer learners to the pictures on pages 22 and 23 of the DBE Grade R Integrated Workbook 3.
2. You can facilitate any number CAPS linked games and activities through the pictures.

   Some ideas:

   Beginning sounds: What can you see that starts with _?

   Spatial concepts: What can you see under or on the water?

   Listen and look: Find the round, red and white object.

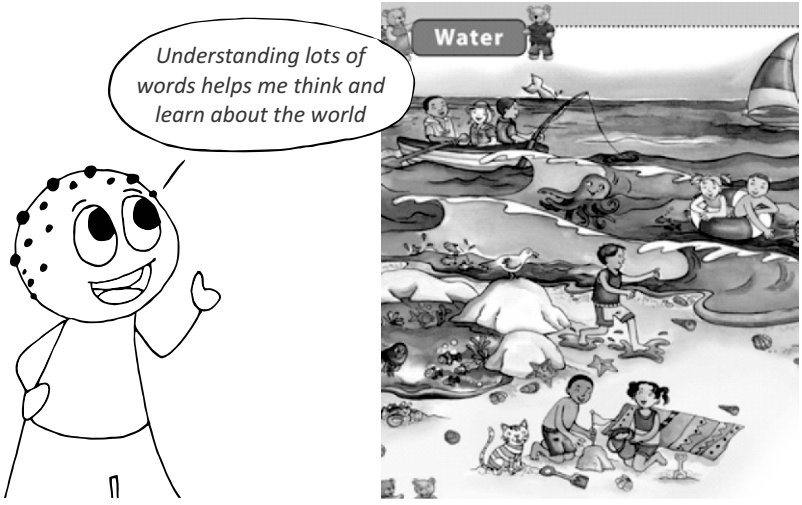
   Similarities and differences: What are the same and what is different between the dog and the cat or dolphin and the octopus?

   Classification: What things go together

   Imaginary conversations: What are the two children on the beach talking about?

   Questions: Encourage learners to ask their own questions about the pictures.

   Role play: Learners can act out some of the situations, for example pretending to fish from a boat or build a sandcastle.



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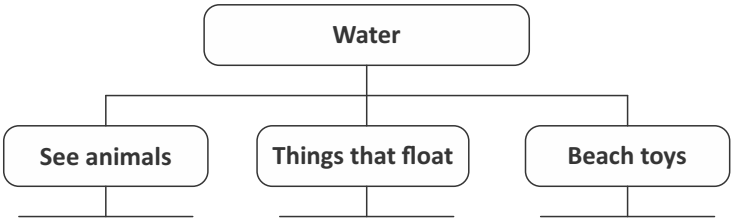
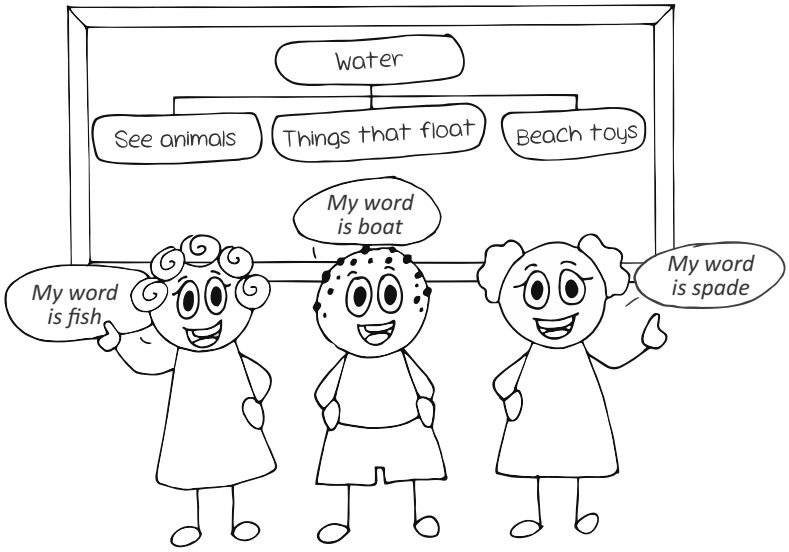
STEP 3

Let's get organised

1. In this step, learners start to classify and organise all the things they saw in the picture (pages 22 and 23 of the DBE Grade R Integrated Workbook 3.)
2. Draw a big tree map on the board.
3. Encourage learners to think about what things in the pictures go together i.e., they need to classify things according to their own criteria. Give them a chance to think and offer some clues if necessary.
4. These subheadings are examples only. It's important that learners think up their own classifications. You can have more than three subheadings.



5. Keeping with the idea of moving to learn, you can give each learner the name of something in the pictures and she or her must go and stand in front of the appropriate subheading. In this way they can create a big human tree map.



Teacher tip: Moving to learn

Learners using their bodies to create circle and tree maps is an example of learning in the concrete first. Once they have experienced the maps in their bodies, they will understand the representation of the maps on paper more easily.arners is an excellent way to start developing their critical thinking.

NOTEPAD

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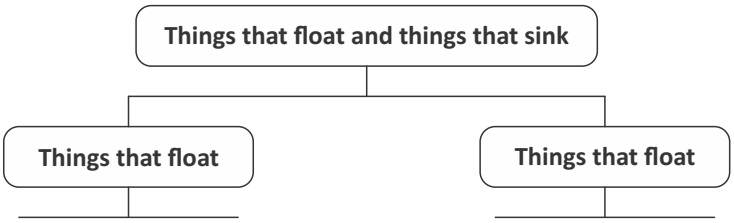
Note your reflections here:

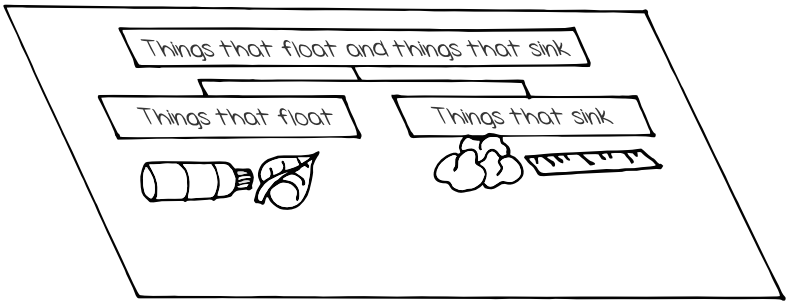
STEP 4

Let's use our learning

1. Learners will now work in groups and experiment to discover things that float and things that sink. Their findings will be organised on a tree map on the floor.
2. To prepare for this experiment, learners need containers of water and a pile of everyday items. These can range from leaves and twigs, to stationery, to recycled and waste material. (They will all be put in water so check that nothing valuable is used that can be ruined)
3. Create space on the floor or ground outside to create a tree map.



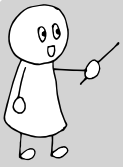
4. Learners now test all the items to see if they float or sink. Each item needs to be placed under the appropriate heading on the tree map.



5. Once all items have been tested and classified, encourage learners to try to work WHY some things float and others sink.

Teacher tip: Counting and comparing

The tree maps can be used as a counting tools. The items under the subheadings can be counted and compared to see whether there are more, less or an equal number of items.



S.P.E.C.I.A.L.

*Experiments inspire **curiosity**, foster **active engagement** and are **enjoyable** which makes them S.P.E.C.I.A.L.*

NOTEPAD

Note your bright ideas here:

Note your reflections here:

THE JOURNEY: STAGE 2

PROBLEM-BASED LEARNING

This step takes us into a new phase of the project which is problem-based learning. From here, learners take control of the project and use what they have learnt to solve a problem. This includes a lot of collaborative learning, where learners share ideas, make decisions, design plans and solve problems. Your role from here is to guide, facilitate and advise.

STEP 5

What are we building?

1. Explain to learners that they now know what makes things float' will work in groups and collaborate to design and build a boat that floats. They must build their boat from mainly found or waste materials and can use the materials that floated from the experiment conducted in **Step 4 Let's use our learning**.
2. Add in an extra problem by challenging learners to make a boat that not only floats but can also carry a load such as few stones.

Teaching tip: Encourage the creative thinking competency

It's recommended that learners create and build their boats completely from their imaginations. However, if anyone struggles with a creative block, there are pictures in the Teachers' Resource Pack for some inspiration.

Refer to page 3 for more on competencies.

NOTEPAD

Note your bright ideas here:

Note your reflections here:

STEP 6

Let's brainstorm

1. In their groups, learners brainstorm what materials and tools they need to build their boats. Pictures of these items can be drawn by learners on a paper circle map.
2. A quick look at the maps will help you see which groups are coping and who might need help.

STEP 7

Let's explore

1. Based on their circle maps, learners gather their tools and materials.

STEP 8

Let's plan

1. With the materials at hand, learners now collaborate, discuss and plan the construction of their boats and how to make sure they can carry a small load without sinking. They can build a prototype to test their thinking.
2. You can scaffold this by helping learners sequence their thinking. for example, ask them what they think they should do first, and what they could do next. Y
3. Give learners time to grapple with the planning and as far as possible let them sort out any disagreements that might bubble up in the group.

Cross-curricular connections

The Problem-based Learning stage lends itself well to the development of language skills listed in the CAPS.

LANGUAGE
Uses language to develop concepts
Uses language to think and reason
Uses language to investigate and explore
Processes information

Teacher tip: Catch the competencies
This stage is rich in opportunities for learners to practice competencies as they: Connect, Communicate and Collaborate, and Think Creatively and Critically.
Refer to page 3 for more on competencies.

NOTEPAD

Note your bright ideas here:

Note your reflections here:

THE JOURNEY: STAGE 3

DESIGN-BASED LEARNING

The design phase is where the design comes to life as a built object. Before building, learners create a design prototype. They present these to their peers for feedback and then iterate and change or improve on the original design.

STEP 9

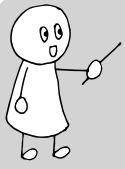
Let's present

1. In this step, each group makes a first public presentation of their plans and/or prototypes of their boats. Each group presents and explains their plans to the class. Learners in the class can ask questions and give positive and useful feedback.
2) The groups need to discuss the feedback and decide if they need to make any changes to improve their boats.

Teacher tip: Peer review and feedback guide

Providing the learners with a reviewing and feedback guide helps focus their observations, organise their thinking and make their feedback appropriate. Creating a guide like this together with even young learners is an excellent way to start developing their critical thinking. You can model this process by reviewing the first group's presentation together with the class. In this way they can hear your thinking and reasoning and listen to the types of questions you may ask.

PET SHELTER FEEDBACK GUIDE	☺	😐	☹
Does the plan make sense or is it confusing?			
Are they using only found and recycled materials?			
Has the group explained how the boats will be built?			
Will the boats float and are they strong enough to carry a light load?			



S.P.E.C.I.A.L.

Getting feedback and making changes to improve on the original design based on this feedback is an example of ***iteration****.*

NOTEPAD

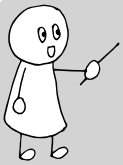
Note your bright ideas here:

Note your reflections here:

STEP 10

Let's build

1. Learners have their materials, their tools and their iterated design plans and are now ready to go ahead and build their boats. This is the most fun part when all the learners' hard work and planning is brought to life.



S.P.E.C.I.A.L.
*Building the boat is a hands-on, creative and **socially engaging** activity that brings much enjoyment to the class.*

Cross-curricular connections

The song and dance links well to Life Skills.

LIFE SKILLS
Create in 3-D *(Constructions and modelling)*
Create freely using a range of recyclable materials

STEP 11

Let's celebrate and share

1. Today is the day the Grade R learners exhibit their boats. They will be delighted and so proud to show off their boats and explain how they were built to other learners, parents, caregivers and community members.

Teacher tip: Activity spinoffs
After the exhibition. Learners could test which boat could carry the most stones without sinking completely. This opens the opportunity for using comparative concepts such as more, less, most, least, light, heavy, lighter, heavier, lightest and heaviest.
After the exhibition, learners could also compare boats and identify and describe similarities and differences in terms of size, colours, shapes, and materials used.

NOTEPAD

Note your bright ideas here:

Note your reflections here:

STEP 12

Let's look back and learn

"We don't learn from experience, we learn from reflecting on experience." (John Dewey)

In this final step, each learner needs to think back on their experience of the project and answer these reflection questions.

- **Water**
  - Explain the difference between things that float and things that sink.
- **Building the boat**
  - What did you love the most about the project?
  - What did you find the most difficult about the project?
  - What was the biggest problem you had to overcome when building the boat and how do you solve it?
  - What advice would you give to other learners who might do this project?
- **Working in a group**
  - What was the best part of working in your group?
  - What do you think was the most important thing you did for your group?
  - What was difficult about working in a group?
  - What was the biggest problem you had to overcome when working in a group and could you solve it?
- **Yourself**
  - What did you do in the project that makes you feel proud of yourself?

Teacher tip: You're never too young to learn

Some of these reflection questions might be challenging for grade Rs although we shouldn't underestimate their ability to reflect.

If reflection is completely unfamiliar to learners, start small and choose a few questions to get them into this habit of thinking.

NOTEPAD

Note your bright ideas here:

Note your reflections here: