



2017 TRAINING WORKSHOP NO.10
MATHEMATICS



FOUNDATION PHASE





education

Department:
Education

PROVINCE OF KWAZULU-NATAL

**Foundation phase
Just-in-Time Training Workshop 10
August 2017**

Facilitator's Guide

Maths



Jika iMfundo
what I do matters

Endorsed by:



Jika iMfundo
Foundation Phase JIT
Workshop 10 Mathematics: August 2017
Workshop guide for facilitators

In this workshop participants will find out more about teaching and assessment in the context of the topics of addition, capacity and symmetry using the Jika iMfundo FP Mathematics materials.

MATERIALS:

- **The facilitator needs to bring the following to the session:**
 - some counters for the addition activities
 - some empty containers e.g. bottles, cups and spoons for the capacity activities
 - scrap paper for the symmetry activities
- **Participants need paper to work on.**
- **Excerpts from the revised 2018 toolkit are included.**
- **Lesson plans from Term 3 are referenced.**

Work in groups on all of the activity questions. Time guidelines are given and your facilitator will interact with you while you work. You will also be able to share key ideas together with the large group.

Workshop plan

8.00 – 8.30 – Arrival and distribution of materials for the workshop

8.30 – 10.30 – Session 1: Teaching addition and subtraction using the Jika iMfundo mathematics lesson plans (2 hours = 120 min)

10.30-12.00 – Session 2: Linking teaching and learning of capacity to assessment using the Jika iMfundo lesson plans and tracker. (1½ hours = 90 min)

12.00-12.30 – Break

12.30-13.30 – Session 3: Symmetry in geometric shapes and patterns (1 hour = 60 min)

Session 1: Teaching addition and subtraction using the Jika iMfundo mathematics lesson plans (120 min)

Materials: When you work through this activity you will need to work with counters.

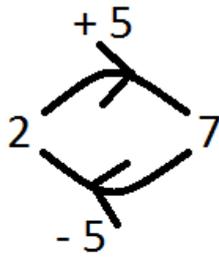
Information to be read for discussion in Activity 1 is provided in the participants guide. Give the participants time to read this information before they discuss the questions that follow.

In this discussion participants will (amongst other things) think about the value of drawing being used to show calculations. This is important considering the number of learners in the IP and even SP who still resort to drawing when they do calculations – which is completely inappropriate at that level.

Activity 1

1. Discuss the following questions:
 - a. Why do we introduce addition first and then subtraction?
Teachers should always begin with addition. Addition will provide students with the basic knowledge that they will use later on for subtraction, multiplication and division. Addition is the natural starting point because it follows on from number concept development – for example – counting all (to establish the idea of ‘how much’ (e.g. count 5 counters) links to counting all to establish ‘how much altogether’ after combining two groups of counters (e.g. count all to find out what $2 + 3 = _$). Once the concept of addition has been established, the concept is applied to bigger numbers and in different contexts. The other operation concepts follow – building on addition.
 - b. In what way are addition and subtraction related?
They are inverse relations. The one undoes what the other one does.

- c. Give an example that shows the relationship between addition and subtraction.
 $2 + 5 = 7$ and $7 - 5 = 2$. This can be shown by way of a circular drawing as follows



2. What is the role of drawing when doing calculations?
- a) Should Grade 1 learners do drawings to show calculations and if so when and how?
It is acceptable for Grade 1 learners to do drawings when they first learn about the concepts of addition and subtract. At this stage they are establishing the concept of what it means to 'add' and to 'subtract' – they will be working with counters (and other concrete aids) and learning to understand the meaning of the terms. However they should not continue to draw solutions to addition/subtraction problems for too long. As soon as learners are able to write number symbols and operation symbols, they should record a numeric calculation using numbers and symbols. When they are still doing drawings, they should learn to write the number sentences for what they have drawn almost simultaneously. This is the efficient and mathematically correct way of recording mathematical working and it can be extended to bigger numbers as time passes. Drawing counters (sticks, circles etc.) cannot be extended to the higher number ranges.
- b) Should older learners do drawings to show calculations? Why/why not?
They should not. They should record their calculations using numbers and symbols. Drawings are not a strategy – they are an illustration that can be used to lead towards a strategy and they need to be used appropriately. Learners above Grade 3 on large numbers- way too big to be 'drawn' and so right from the start, learners should move to numeric/symbolic recordings of working. This will help them to generalise their understanding of operation concept to bigger numbers.
3. How do we know that the ANA data shows that learners continue to try to do addition and subtraction using unit counts, in Grade 3 and beyond?
- a) What evidence is there for this strategy?
We see evidence of learners drawing unit counts (little lines or circles) on their ANA scripts right up to Grade 6.
- b) How do your learners show their addition and subtraction calculations?
Answers will vary – teachers can talk about initial drawings, number sentences, horizontal calculations, vertical calculations, compensations and so on.
4. Think about how learners would do the following calculations and show their working. Show/discuss the strategies you think they might use.
Teachers will show different strategies. All correct working and appropriate ideas should be worked with but the idea of progression as the number range increases should be mentioned.
- a) Grade 1: $3 + 4 =$
- b) Grade 2: $33 + 44 =$
- c) Grade 3: $333 + 444 =$
- d) Discuss the working you did when you did the calculations. Compare methods and the efficiency of the methods.
Answers will vary. Strategies that work for a Grade 1 learner might not work for a Grade 3 learner. The value of the vertical (old fashioned column method) should be discussed together with the other methods (such as horizontal working and compensations). The vertical algorithm is efficient – easy to write, check and work with. This method can (and should) be well taught, using the language of place value to explain the building up and breaking down that occurs when one 'carries' and 'borrows' – in this way it builds learners operation skills and number concept at the same time. The value of mental maths (using the bonds) when doing calculations is also important. Every calculation strategy (horizontal or vertical) builds on mental maths – the recall of the basic bonds.

Conceptual and procedural knowledge

The next activity draws on CAPS information and a reading about Conceptual and procedural knowledge which is provided in the participants guide. The reading provides insight into the relationship between these two kinds of knowledge – seeing them as separate and yet inseparable.

A reading is given that discusses the meaning of conceptual understanding. This is an extract from a very well-known document – it will enrich the participants knowledge of conceptual understanding and enable them to have a reference point from which to compare it to procedural understanding.

Curriculum requirements

The CAPS overview for addition and subtraction is given in the participants guide. The extract is for the full year and shows how far learners progress from the start of Grade 1 to the end of Grade 3.

Participants will refer to all of the given information (CAPS and the reading) when they work through the following activity.

Activity 2

Discuss the following questions in your group. Refer to the CAPS extract above in your discussion.

1. What is the progression from Grade 1 to Grade 3 in each of the following curriculum categories?
 - a. **1.7 Addition and subtraction** (solution of word problems)
The number range is extended. The concrete aids and drawings of counters (Grade 1) are used to provide a means for the learners to move towards conceptual understanding of the operations – conceptually and procedurally – in order for them to do calculations in higher number ranges (2-digit numbers in Grade 2 and 3-digit numbers in Grade 3).
 - b. **1.12 Techniques (methods or strategies)**
There are some added strategies and techniques from year to year (although most strategies are mentioned for all three years).
 - c. **1.13 Addition and subtraction**
The number range is extended. Single digit calculations in Grade 1, calculations up to 2-digit numbers in Grade 2 and up to 3-digit numbers in Grade 3.
 - d. **1.16 Mental mathematics**
There are some added strategies and techniques from year to year (although most strategies are mentioned for all three years).
2. Referring to the extracts from Kilpatrick et al, explain the difference between conceptual and procedural understanding. Why do learners need both kinds of understanding?
*Discuss in groups. Refer to the theory. Talk about the need for both types of understanding. You should continuously be checking that learners understand what they are writing and can explain to you in words what they have done, to make sure that their **conceptual** as well as their **procedural** knowledge and understanding is developing. The aim should be to write out the calculation using number and operation symbols. Teachers should encourage learners to use numbers and symbols as soon as they are able to and should give them lots of practise in doing so. It is important for teachers to remember that number concept is the foundational knowledge required to do operations. That is why learning about doing operations on ever increasing numbers requires a solid understanding of the number system of place value. One could say that number concept underpins procedural fluency – learners cannot perform the procedures without the conceptual understanding.*
3. Which type of knowledge helps learners to interpret word problems? Conceptual or procedural or both? Discuss.
It is the conceptual understanding that enables learners to interpret word problems correctly – they are able to analyse a given situation and interpret what operation is required in order to find the solution. This emphasises the importance of introducing operations using contextual questions – purely numeric calculations follow once the concept has been established. Procedural skills will enable learners to perform the operations correctly, once they have identified what they need to do. The terminology relating to the concepts needs to be taught – all of it. For example – add, find the sum, how much altogether, what is the total number; subtract, find the difference, how much is left, how much more do I need, etc.

4. Explain how knowing about the difference between conceptual and procedural understanding might affect the way you teach.
Talk about how it affects the way you teach. Answers will vary. Need to be aware that you are developing BOTH conceptual and procedural understanding. Teach for this understanding and push learners to use their knowledge to solve problems. Teach for understanding!
5. In terms of the CAPS extract explain and give examples of the following:
 - a. What is the progression in **conceptual** understanding in the FP for addition and subtraction?
The concepts (addition and subtraction) are established in Grade 1. After that the number range is extended.
 - b. What is the progression in **procedural** understanding in the FP for addition and subtraction?
The procedural skill of doing the operation calculations for the extended number range is developed.
6. Does the CAPS clarify the progression well or if not, where and why not?
Discuss all ideas raised by teachers. There is some clear definition of progression but some items do not show this well. Some ideas (such as counting) are carried right through which is not correct – counting as a method of calculation should not be done beyond Grade 1. E.g. “put the larger number first to count on or count back” does not really have a place beyond Grade 1.

Teaching addition and subtraction using the Jika iMfundo lesson plans

Activity 3

With reference to the lesson plans from Grade 1, 2 and 3, participants analyse the activities and think about ways in which they would use these activities.

1. What content is covered and how it is presented?
The content is that of addition and subtraction – the Grade 1 lesson includes the use of counters, number cards and Unifix cubes. The Grade 2 lesson is dealing with addition of 2-digit numbers – and uses Unifix cubes, which are still appropriate at this level. The Grade 3 lesson deals with addition of 3-digit numbers – and uses base ten blocks, which are appropriate at this level since they embody place value in 3-digit numbers (the different sizes of the blocks are a physical representation of the size of the numbers in the various places). Circulate and listen to responses from all groups and ask for general feedback to the whole group.
2. How does it relate to the CAPS content specifications?
Refer to the CAPS extract to decide where this lesson fits in. The content is Grade appropriate.
3. How do the lesson activities promote conceptual and procedural understanding?
Refer to the ideas discussed on the Kilpatrick extract. Refer to own experience. Various suggestions possible. One common strategy in the lessons across the grades is to use concrete materials to demonstrate the calculations and also to record the numeric calculations that have been demonstrated. This would be helpful in promoting conceptual and procedural understanding.
4. How would you use the activity?
Various suggestions possible. Circulate and listen to Responses from all groups and ask for general feedback of good ideas to the whole group. Encourage participants to think actively of how they would use this particular plan in their own classroom.
5. Would you add to/change the activity in any way and if so, how and why?
Various suggestions possible. Circulate and listen to Responses from all groups and ask for general feedback of good ideas to the whole group. Encourage participants to think critically and creatively as this builds knowledge and self-awareness which will help them to be better teachers.

Some further reflection on teaching addition and subtraction in Grades 1, 2 and 3.

When working with learners to teach them about addition and subtraction – initially you are establishing the concept but thereafter you are enabling them to develop their procedural fluency in doing the operations. This is a critical element of learning in the FP. You will begin using concrete materials and referring to

drawings but you MUST move on to numeric calculations as soon as the concepts are established.

Grade 1 Term 3 lesson 12

Add specific ideas form training session where necessary.

Grade 2 Term 3 lesson 11

Add specific ideas form training session where necessary.

By Grade 2 learners should be able to do calculations with up to 2-digit numbers. They should NOT be doing unit counting or drawing small sticks to show unit counting at all. They should still work with base ten blocks or Unifix blocks to learn about regrouping – either by building up and breaking down (sometimes called carrying and borrowing). Once they have learnt about regrouping and can use the language of place value to talk about the way in which they are operating on numbers (with up to 2-digits), they can do these calculations without using blocks at all. They should then be able to do the calculations numerically and record their answers using number and operation symbols. They should not be doing any drawings to record their solutions.

Grade 3 Term 3 lesson 7

Add specific ideas form training session where necessary.

By Grade 3 learners should be able to do calculations with up to 3-digit numbers. They should definitely NOT be doing unit counting or drawing small sticks to show unit counting at all. They should still work with base ten blocks or Unifix blocks to learn about regrouping (with up to 3-digit numbers) – extending their knowledge from the Grade 2 number range. Once they have learnt about regrouping and can use the language of place value to talk about the way in which they are operating on numbers (with up to 3-digits), they can do these calculations without using blocks at all. They should then be able to do the calculations numerically and record their answers using number and operation symbols. They should not be doing any drawings to record their solutions.

Session 2: Linking teaching and learning of capacity to assessment using the Jika iMfundo lesson plans and tracker. (90 min)

Materials: When you work through this activity you will need some empty containers e.g. bottles, cups and spoons.

Piaget's conservation tests and capacity

Information is given to the participants about this. You should discuss it with them and allow them some time to read the notes before they start with Activity 1.

Conservation of capacity

Further information is also given to the participants about conservation in relation to capacity. You should discuss this and allow the participants some time to read the notes before they start with Activity 1.

Activity 1

Discuss these questions in groups – use the given theory to explain your answers.

1. Why is it important that a child achieves conservation of capacity before we teach the child to measure capacity?

The main idea is that you cannot proceed to procedural activities (such as measuring) until you have the conceptual knowledge of what you are measuring. Conservation of the concept refers to the conceptual understanding of that concept.

2. What is the difference between conservation and reversibility of capacity, using the terms as Piaget spoke about them?

Conservation of the concept of capacity is shown when learners are able to recognise that a

container has the same capacity no matter how full or empty it is because capacity is the amount it is able to hold. Reversibility of capacity could be understood in relation to a plastic bag – whether it is flat (and empty) or bulging (and full) its capacity remains the same.

3. Discuss the activity on conservation of capacity using the two mugs. How will it help you test the learners understanding of the concept of capacity?
This activity provides questions based on concrete demonstrations. By showing the demonstrations and asking the questions – and listening to the answers that learners give – teachers will be able to assess whether/not learners have grasped the concept of capacity.

Capacity (and volume): Curriculum information

The participants guide has the curriculum extract for the topic of capacity.

NOTE:

Volume is the amount of space taken up by an object.

Capacity is the amount a container is able to hold.

The definitions of volume and capacity should be discussed – and the difference between capacity and volume must be noted.

In the activity, participants also need to refer to the extract from the English/IsiZulu dictionary (Appendix 1).

Activity 2

Discuss the following questions in your group. Refer to the CAPS extract above in your discussion.

1. Fill in the missing words:
 - a) **Volume** is a measurement of the amount of space taken up by an object.
 - b) The amount of liquid (or other substance such as sand) that a container can hold is called the *capacity* of the container.
2. **Capacity/volume**
The CAPS refers to the section on capacity as ‘capacity/volume’.
 - a. Why does the CAPS put the two topics together and in what way are they related?
Discuss in groups. The topics are related but they are different. This must be made clear so that learners do not confuse the two. The relationship is very close in that the measurement for capacity is often given according to the volume of the substance that it can hold.
 - b. How will you differentiate between these two terms in your classroom?
The key thing to remember is that capacity refers to the TOTAL amount a container can hold, not the volume of substance in the container. Volume is not about “ability to hold” – it is about space taken up.
3. **Progression**
 - a. What is the progression across the grades in relation to the teaching of capacity?
Move from introducing the topics for the first time in Grade 1 to consolidating the concepts in Grade 3. Move from using non-standard units for measuring to using standard units (in Grade 3 – although this is now shown in the overview, it is given in the detail for Grade 3). Vocabulary is introduced in Grade 1 – should be taught and used from then onwards to establish it as part of the working knowledge of the learners.
 - b. What are the links between the grades and how can teachers use these to consolidate the concept of capacity?
The concepts are taught in all three years – this provides opportunities to refer back to prior knowledge, to consolidate it and to move forward.

4. Vocabulary of capacity and volume:

- a. Review the extract – discuss the given translations and how you would teach this vocabulary in FP classes.
Answers will vary. Discuss in groups. Emphasise the importance of teaching mathematical vocabulary and language.
- b. How can teachers make sure that they teach all of the vocabulary in the lessons that they present on the CAPS topics?
Discuss. Must make a concentrated effort! This is essential.

Teaching capacity using the Jika iMfundo lesson plans

The next activity gives participants the chance to work through two lessons on capacity from the revised Jika iMfundo lesson plans. In the revised lesson plans, for certain lessons, teachers' notes relating to the lesson activities of a day are provided. These are there to prompt the teacher about certain important ideas relating to the lesson.

Activity 3

With reference to the lesson plans from Grade 1 for 2018, participants analyse the activities and think about ways in which they would use these activities. They will also discuss new elements in the 2018 revised lesson plans.

1. What introductory information is given for the teacher at the beginning of the lesson plan?
There is a brief note on the teaching of capacity which situates the lessons in the CAPS gives the teacher information that relates to the content taught in the lesson.
2. What content is covered in the lessons and how it is presented?
Capacity is the topic covered. Presented using hands-on activities.
3. How does it relate to the CAPS content specifications?
The content is linked to the CAPS specifications for Capacity in Term 1, Grade 3.
4. How do the lesson plans scaffold the content (in each of the lesson plans)?
Step by step guidelines are given for each of the lesson activities.
5. What is the progression between the two lessons?
The first lesson builds on the prior knowledge of learners from Grades 1 and 2. The concept of capacity is discussed while learners do some practical activities working with non-standard units in the first lesson – this progresses to a lesson where the standard units for capacity are discussed in the second lesson.
6. What sequencing do you notice and how will this work to consolidate the conceptual teaching?
Teachers guide learners through the activities progressively and give the information needed to do the activities so that learners are supported.
7. How do the lessons link to the theory you discussed at the beginning of this session?
The practical activities (working with containers) allow for a context in which the theoretical idea (capacity) can be discussed.
8. How would you use the activities?
Answers will vary. Discuss in groups and give reasons for answers.
9. Would you add to/change the activities in any way and if so, how and why?
Answers will vary. Discuss in groups and give reasons for answers.

Assessment in the 2018 Tracker

Discussion of extracts from the 2018 tracker (weekly page with continuous assessment activity, assessment pack and suggested mark sheet) – linked to the topic of capacity as taught in Grade 3, Term 1, Week 9 (the lessons that were discussed in the previous activity).

Activity 4

1. Study the description of the task in the tracker page for Week 9 (See Appendix 2.1).
 - a. What CAPS content area does it relate to and what specific content from the CAPS topic does *Capacity*. It assesses the content taught in the two lessons on capacity in Week 9.
 - b. What mark is allocated to the activity and where will you record this mark?
In the observation book (or other mark record book) and in SA SAMS. (7 marks allocated in total). The suggested mark sheet (Appendix 2.4 in the participants guide) could be used.
 - c. Is the activity formal or informal? What does this mean?
Formal. This means that the marks must be used to contribute towards the mark in the SA SAMS mark sheet. Every learner in the class needs a mark for this activity which must be recorded in the teachers mark sheet (a suggested mark sheet is also provided in the tracker – see Appendix 2 of the participants guide).
2. The marks are given in the left hand column and the criteria are given in the right hand column of the checklist.
 - a. How do the criteria relate to each other?
They each describe an aspect of the knowledge/skills relating to capacity which is the topic being assessed.
 - b. How would you allocate marks using this checklist?
One mark per criteria satisfied by a learner.
 - c. How would you calculate the percentage of a learner once you have found his mark out of 7 using the checklist?
Add up the total marks achieved by the learner. Use the row with percentage conversions provided below the checklist.
3. Unpack each of the seven criteria – explain what evidence in learners’ work would lead to them achieving each of the criteria.
Discuss in groups and give reasons for answers. Discuss how teachers can manage to get marks for every learner, even in big classes.
 - *If the class is big, you need to be strategic. For example:*
 - *Have your class mark sheet ready at the beginning of lesson(s) on which you will record an assessment mark.*
 - *Assess stronger learners by observing them during the lesson – note if they achieve each of the criteria and mark with a cross any that they don’t.*
 - *Weaker learners need to be assessed individually according to each criterion. Note which they achieve and which they don’t.*
 - *Use whiteboards/slates where possible for learners to show an answer – look around the class – note those who did not get an answer correct and mark it on your mark sheet.*
 - *Think of other strategic ways you can make it easier for yourself to record marks.*
4. Study the other extracts (Appendix 2.2, 2.3 and 2.4, pp. 23-27) to find out more about the assessment package in the 2018 tracker. Discuss how it is the same/different from the current tracker and in what ways it will be useful to teachers.
Discuss in groups. All of the appendices should be examined and discussed. The following are important things to note:
 - *The assessment items (for written assessment activities) are now included in the Tracker, at the end of the Tracker document.*
 - *The items are grouped according to the CAPS content strands to make it easier for you to*

find them and use them.

- Suggested marking memoranda are provided, with items numbered according to the numbering of the items provided for easy reference.
- There is a summary of the assessment items given so that you can see what is available at a glance when you are preparing on any particular topic.
- Links to assessment items that are relevant to particular lessons are given in the resources column of the tracker. These links will help to remind you to do written assessment and to know when written assessment items are available for use in the tracker. The placing of the assessment items in the tracker means that they can be updated more easily should this be possible.

Session 3: Symmetry in geometric shapes and patterns (60 min)

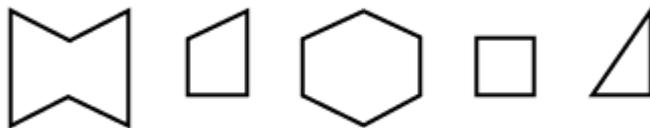
Materials: Scrap paper.

The participants guide has information about symmetry. You should discuss this content with them and allow them time to read it so that they are able to refer to it meaningfully when they do the activities that follow.

The guide also has some suggestions for the teaching of symmetry. Participants will need to read this list carefully and think about how to use the suggested ideas. They will discuss this in the activity.

Activity 1

1. Identify which of these shapes are symmetrical figures. Explain your choices.



The first, third and fourth shapes are symmetrical. They have at least one line of symmetry.

- Shape 1 has 2 lines of symmetry.
- Shape 3 has 2 lines of symmetry.
- Shape 4 is a square and has 4 lines of symmetry.

The second and last shapes are not symmetrical. They can also be called asymmetrical shapes.

2. Identify which figures represent congruent pairs of symmetrical shapes with respect to the given line. Explain your choices.



The first and fourth pairs of shapes are symmetrical. They are pairs of shapes that have been reflected in the given line of symmetry. The other pairs of shapes are congruent (the same as each other) but in the positions that they are drawn, they are not symmetrical pairs of shapes.

3. Draw:

- a pair of congruent symmetrical figures
- a shape with one axis of symmetry
- a shape with two axes of symmetry
- a shape with four axes of symmetry (four separate drawings).

Answers will vary. Encourage the participants to be creative. Refer to the examples given in the participants guide for examples.

4. Discuss how you would use two of the suggested activities (page 16) to teach symmetry in your class. *Answers will vary. Encourage the participants to be creative and to refer in detail to how they will use the suggested ideas.*

Symmetry: Curriculum information

The participants guide has the curriculum extract for the topic of symmetry. In the activity, participants also need to refer to the extract from the English/IsiZulu dictionary (Appendix 1).

Activity 2

Discuss the following questions in your group. Refer to the CAPS extract above in your discussion.

1. Progression

- a. What is the progression across the grades in relation to the teaching of symmetry?
Symmetry is introduced in Grade 1 with reference to the symmetry of the human body – something to which learners can relate. This progresses to recognition of symmetry in other non-geometric and geometric shapes.
- b. What are the links between the grades and how can teachers use these to consolidate the concept of symmetry?
In all grades non-geometric and geometric shapes are considered and recognition of symmetry and the ability to draw lines of symmetry in a shape is prescribed.

2. Vocabulary of symmetry:

- a. Review the extract – discuss the given translations and how you would teach this vocabulary in FP classes.
Discuss in groups and give reasons for answers.
- b. How can teachers make sure that they teach all of the vocabulary in the lessons that they present on the CAPS topics?
Discuss in groups and give reasons for answers.

Teaching symmetry using the Jika iMfundo lesson plans

The next activity gives the participants the opportunity to work through some of the Lesson Plan activities on the topic of symmetry, from the Term 3 Lesson Plans.

Activity 3

With reference to the Term 3 lesson plans from Grade 1 and 2, participants analyse the activities and think about ways in which they would use these activities.

1. What content is covered and how it is presented.
Symmetry is the topic covered. Presented using hands- activities. The activities are hands-on and involve paper-folding, drawing and so on. The lesson plans have activities with drawings that are geometric and non-geometric (although the non-geometric shapes are drawn using collections of geometric shapes) and they could motivate learners because they are captivating.
2. How does it relate to the CAPS content specifications?
Discuss. The content is linked to the CAPS specifications for symmetry in Term 3, Grade 1 and 2. There is no symmetry in Grade 3, Term 3, according to CAPS (symmetry is covered in other terms in Grade 3).
3. How would you use the activity?
Answers will vary. Discuss in groups and give reasons for answers.
4. Would you add to/change the activity in any way and if so, how and why?
Answers will vary. Discuss in groups and give reasons for answers.

Acknowledgement: The following resource was used in the preparation of this workshop. Sapire, I. (2010). *Mathematics for Primary School Teachers*. Saide and the Wits School of Education, University of the Witwatersrand, Johannesburg.