Activity Plan

LENGTH

Suitable for: Senior Primary Students

Activity Developed by:
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Adapted from: Curriculum at Work

Name of Activity: Can you make the distance?

Maths concepts

This lesson aims to develop year six students’ conceptual understandings of the measurement topic of Length. Although length is one of the most easily perceived attributes of an object, it is still an essential aspect of measurement understanding (Reys, Lindquist, Lambdin, Smith, Rodgers, Falle, Frid, Bennett, 212). This lesson works towards discerning what students already understand about length and developing from this through other areas such as distance, problem solving techniques, estimation, scale, units of measurement and conversion of units of measurement. Scale is an essential component of mapping (Reys, et. Al, 2012), it is through an understanding of scale that students will distinguish the distances between two places and the distance of one trip round Australia. The understanding of scale within a grade six classroom will underpin smooth transition from primary school mathematics to a more abstract understanding of ratio, proportion and percentage which commonly takes place in maths and science classrooms in a year seven context (Reys, et. Al., 2012).

Purpose

From this lesson, it is expected that the students will understand that the distance between locations on a map is proportional to the real distance between these locations. It is through doing this activity that children are expected to develop a relational understanding (Skemp, 1979) of length and scale. Children are expected to make the connection of markings on a map as representative of real life distances. It is through teaching the content and then relating it to an extension task of a journey that students make the development from instrumental understanding to a more complex, abstract relational understanding of length. It is through collaboration with my peers, maths lecturers and
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associate teachers, that the lesson involves problem solving. It is expected that students will have
developed skills such as choosing, interpreting, formulating, modelling and investigating problem
situations, and communicating solutions effectively (ACARA, 2012, p. 5). This activity develops
student’s skills to solve problems when they use mathematics to confront unfamiliar or meaningful
situations through designing their own investigations, planning approaches and applying and
extending existing strategies to seek solutions (ACARA, 2012, p. 5).

Growth Point Focus

The Growth Points in a child’s learning should be likened to stepping stones which help a student
progress through stages of understanding and development (McDonough, 2003, 4). This lesson is
aimed at catering for a Growth Point 4 of Section F - Length Measurement Framework. This lesson is
appropriate as students are aiming to choose standard units for estimating and measuring length
with accuracy. Throughout this lesson, students will be encouraged to aim towards approaching the
level 5 growth point for this measurement unit. Through this lesson children should be applying
knowledge, skill and concepts of maths through solving a range of problems. The lesson can be
adapted for a Growth Point 2, which is comparing, ordering and matching with the attribute of
length, this is evident in the activity table (Appendix 2). Through the omission of the extension, the
lesson has a strong Growth Point 2 to 3 focus. When including the extension and the initial activity,
the lesson is aimed at growth point 4, with an extension activity strengthening children’s
understanding of length and developing toward Growth Point 5.

Materials

The materials needed for this assignment are:

✓ Cotton String (approximately one metre in length)
✓ Class set of scissors
✓ Class set of glue sticks
✓ Class copies of Appendix 1 – A4 sized map of Australia with capital cities marked
✓ Class copies of Appendix 2 – ‘How far is it?’ Table
✓ Class copies of Appendix 3 – A4 sized map of Australia with all 16 journey locations marked
✓ Access to an electronic smart board
Description

In this lesson, Grade six students will make judgements about the length of distances between locations on a map of Australia based on comparison to one known benchmark or standard unit. Students will make judgements about the accuracy of their reasoning and estimation skills and modify their work accordingly. The focus is to estimate and confirm distances in kilometres.

Activity

- Explain to the class as a whole that today the focus is **length** and that we will be developing further on from this into the fields of estimation, problem solving, scales and conversion of units of measurement.

- There is an option to introduce to topic through a picture story book. The book is called ‘Are We There Yet?’ and is written by Alison Lester. This reading will introduce the concept of distance as a type of length and the focus of today’s lesson.

- Display a map of Australia (Appendix 1) visible to students on the electronic whiteboard in front of the class.

- Explain to students that the distance from Melbourne to Perth is about 3000 kilometres. (This could be done in a number of ways – rather than just telling the student this fact, they could play a higher/lower game). Model the measuring of this distance with a piece of string and hold the string up to the class so that everyone can see how it has been measured. Measure the distance from Perth to another capital city, excluding Melbourne, for example, Adelaide with the same piece of string.

- Lead a discussion about what the class has noticed: “So I have this piece of string that represents the distance from Melbourne to Perth, then I wanted to know how far it was from Perth to Adelaide and now I have this little bit left over.” “How am I going to be able to find out the distances between Melbourne and other capital cities?” “If we know that the distance from Melbourne to Perth is 3000Kms, what can we do to work out the distance to other locations?”

- Present each student with an A4 size map of Australia (Appendix 1).
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- Using only the information provided (Melbourne to Perth = 3000 KMS) students are to create their own scale system to use in relation to the map.

- Students will use their own scales to complete the ‘How far is it?’ (Appendix 2) table by estimating the distance to each capital city from Melbourne.

- Students will then cut out each row in the table and reorder them and paste them in their workbooks in relation to the closest to Melbourne to the furthest away from Melbourne.

Extension

- Hand out a different map of Australia (Appendix 3)

- Explain to the children the following scenario:

  “You are about to go on a driving holiday of Australia. There are several places that you want to visit on your trip. Money is very tight and you don’t want to spend any more money than you have to on petrol. You have to visit every place once and do it in the least amount of kilometres that you possibly can overall. The places that you want to visit are:

  ✓ Melbourne
  ✓ Cairns
  ✓ Katherine
  ✓ Sydney
  ✓ Halls Creek
  ✓ Broome
  ✓ Alice Springs
  ✓ Kununurra
  ✓ Laverton
  ✓ Ayers Rock
  ✓ Coober Pedy
  ✓ Kalgoorlie
  ✓ Margaret River
  ✓ Kynuna
  ✓ Broken Hill
  ✓ Eucla

  You must start in Melbourne. There will be a prize for the journey with the shortest overall kilometre count! Good Luck! 😊
References


Image can be located at: http://www.truckgal.com/places_of_interest.html

1,228 words
## How far is it?

*From Melbourne to ---*

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