Footy trip

Goal: to use logic, algebra and patterning to solve a problem

You need

> 3 adults and 2 children models
> one playing board
> 1 or more participants.

What happens

Three adults are travelling on a dirt track (see playing board) to get to a footy game, when their car breaks down. They start walking across a paddock to get to the main road.

Two children on a motorbike come along and agree to help the adults get across the paddock to the main road.

The motorbike is so small it can only carry 1 ADULT **OR** 1 OR 2 CHILDREN. Everyone can ride the bike.

What to do

Calculate: How many trips will be needed for everyone to get to the main road?

Challenge yourself further

How many trips would be needed if there were:
> 4 adults and 2 children?
> 8 adults and 2 children?
> 11 adults and 2 children?

Where the task came from

Transporting people to sports matches can sometimes be tricky if there are more people than seats in cars. Often more than one trip might be needed to get everybody there.

Other times, car pools are organised to pick up players who don't have their own transport.

The numeracies include…

> getting people or things from one location to another

> organising trips such as shopping trips, trips to footy matches.

The mathematics include…

> thinking through the options and determining which way is the best or only way to get the necessary result.

Curriculum framework key ideas

> recognising relationships within different number concepts to make sense of, and represent numerically, a range of community activities and social processes

> using computational tools and strategies, and understanding and representing the thinking processes used to solve problems

> identifying, describing, constructing, representing and predicting patterns and relationships when working with data, measuring and calculating. Learners relate these patterns and relationships to their everyday lives

> demonstrating, recording and reporting on logical and critical thought processes by searching for and abstracting generational algebraic representations from patterns drawn from current social situations

> employing everyday language and mathematical symbols to represent and communicate generalisations about mathematical situations and structures (eg calculating petrol costs per person and how many people will cover the costs)

> analysing mathematical structures and using algebraic formulae to represent situations. Learners develop further the capacity to express themselves and to solve problems involving linear relationships.

Educator options

> Monitor and assess to inform future practice:
>   – what questions are the learners asking
>   *eg 'What's the best way to start?' 'Is there more than one way to solve this?'*
>   – what do you hear the learners talking about?
>   *eg how they worked it out; comparing answers and ways of recording trips*
>   – what strategies are the learners using?
>   *eg did they record the trips or keep a tally ⵉⵉⵉⵉ of each trip?*

> Give learners a hint by asking who they think should be making the first trip on the bike.

> Suggest learners try different numbers of adults and children.

> Work out the **formula** and use for different numbers of adults.

Learner options

> Change the rules *eg only one of the children can ride the bike.*

> Draw a community map and give a pathway for picking up people (ie mapping) to go shopping etc.

Australian Curriculum Content Description

> Year 3: ACMNA057 and ACMNA060
> Year 4: ACMNA081 and ACMNA082
> Year 5: ACMNA107 and ACMNA082
> Year 6: ACMNA133 and ACMNA134

Link to CD: Family organisation > Next > Travelling