

#### AFRICAN INSTITUTE FOR MATHEMATICAL SCIENCES SCHOOLS ENRICHMENT CENTRE TEACHER NETWORK

MAKING STICKS



How long is the line altogether? Can they make any other lines?

5

Kimie and Mdu made sticks from strips of card. Kimie made blue sticks 2 squares long and Mdu made red sticks 3 squares long.

Kimie put her blue sticks end to end in a long line. Mdu put his red sticks end to end in a line underneath Kimie's.

Can they make their lines the same length?

How many sticks would Kimie use? How many would Mdu use?

#### **SOLUTION**

To make this a practical activity you can make the sticks from scrap card or use linking cubes.





The diagram shows one solution with 3 blue sticks and 2 red sticks.

More matching lines can be made with 6 blues and 4 reds making 12 or 9 blues and 6 reds making 18 or 12 blues and 8 reds making 24.

This pattern can be generalised to give any line of blue sticks where the number of sticks is a multiple of 3 matched by a line of red sticks where the number of sticks is a multiple of 2.

# **NOTES FOR TEACHERS**

## Why do this activity?

This activity encourages learners to use counting-on techniques and it builds on learners knowledge of the two and three times tables and counting in 2's and 3's. But it offers the teacher an opportunity to introduce learners to the idea of multiples.

#### **Intended learning outcomes**

Introduction to multiples and common multiples.

#### **Possible approach**

Having available paper or card squares or linking cubes for the learners to use is a necessary part of this learning activity, as it makes it accessible to all. One way to introduce it would be for learners to work in pairs, one of them making blue sticks and one making red sticks, although of course the colour isn't important. Then, pose the questions above for them to investigate together. You could ask learners to record their working, perhaps on squared paper by colouring squares.

Talking to the group about total lengths of blue sticks which match lengths of red sticks allows you to model the appropriate language, for example "6 is a multiple of 2 and 6 is also a multiple of 3". However, it has a lot of scope to be taken further - the open-ended nature of the activity also allows learners to make a generalisation about all the lengths of sticks that can be made from both blue and red. Although many may

not be able to verbalise this formally, they will certainly be able to look for patterns in the numbers that are possible and this can lead to a fruitful discussion.

This work would make a lovely display, for example using sticky red and blue squares on a large grid.

### **Key questions**

How many squares have you used in this line? And this line? Can you find any other lines that are the same length as each other? What is the next line that can be made from both red and blue sticks? How do you know?

#### **Possible extension**

Some learners could investigate sticks of two different lengths, for example 2 and 5; or even three different lengths.

An excellent follow on activity is Path to the Stars <u>https://aiminghigh.aimssec.ac.za/grades-5-to-9-path-to-the-stars/</u>

### **Possible support**

Some learners may have difficulty keeping track of the number of sticks they have used. It would be worth you talking about strategies to help with this, such as counting in threes once a long line has been constructed.