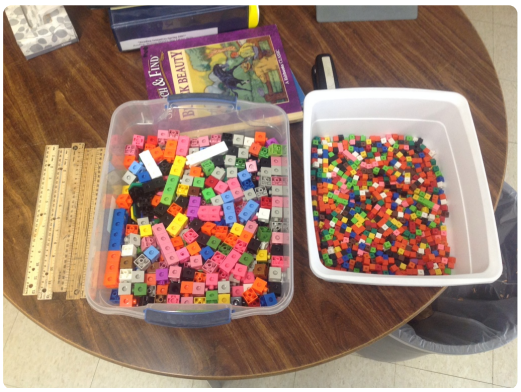
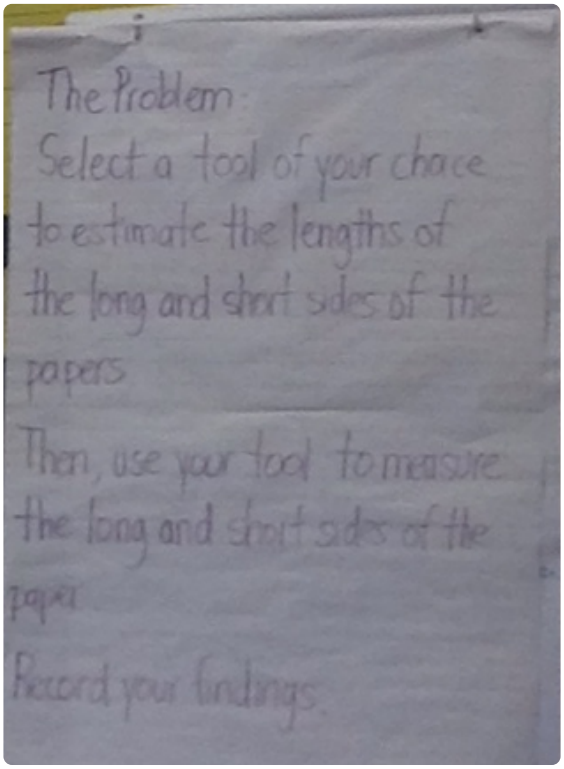


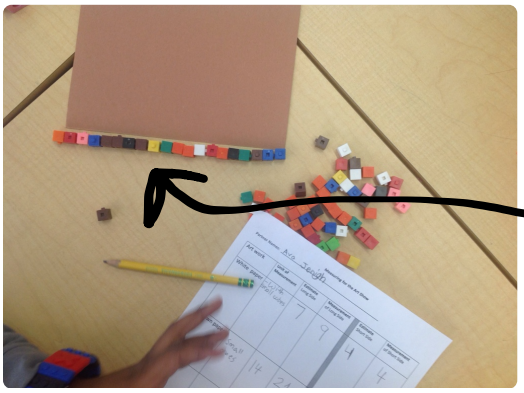


Minds On
-setting the context for the problem, probing for understanding of the term "estimation"

Students said:
-it is an educated guess
-it is a prediction
-the short side is width and the long side is length

Working On It
-students were given many directions about how to choose the locks, so I am wondering if they will all choose cubes instead of rulers?

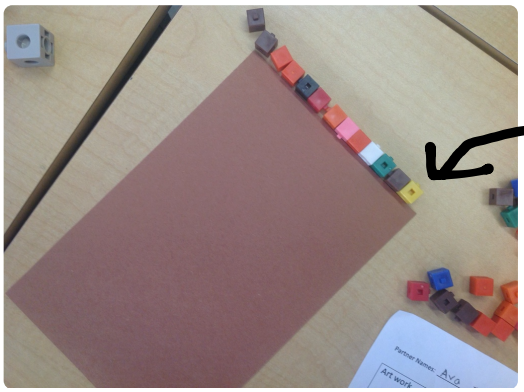
One group is using their pencil to estimate how long a cube is and then go along the edge of the paper counting out their measurement with their pencil?



Are students connecting estimates to measurements and being more reasonable as they go?

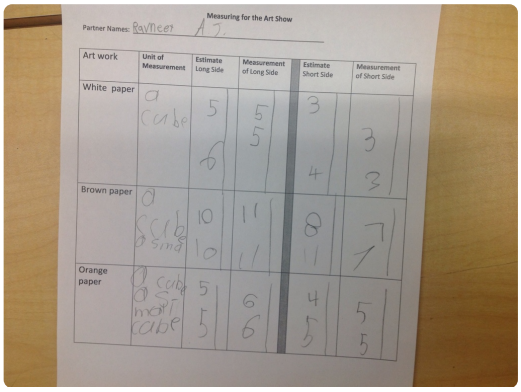
Not flush with edge

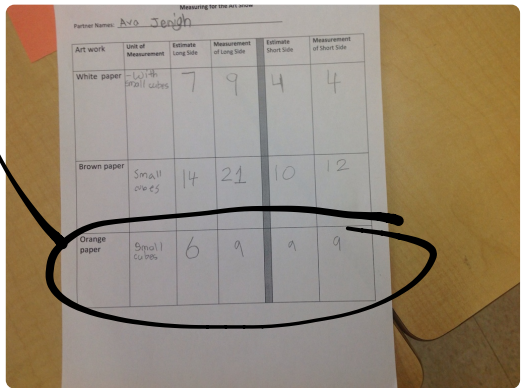
Alignment of objects?



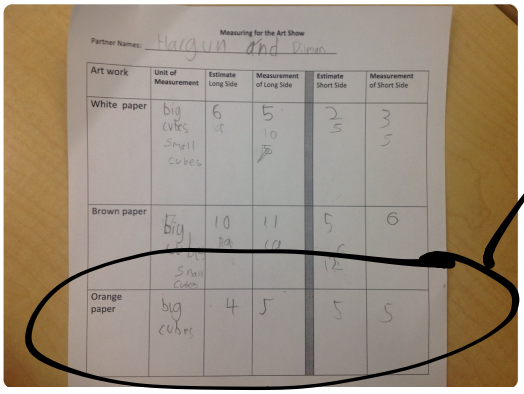
"Write down 12" (there are gaps)

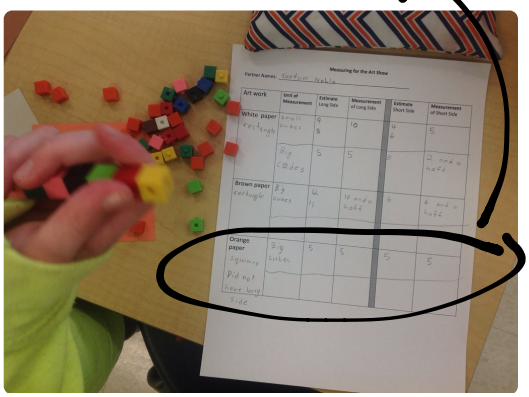
-the orange paper is a square, some groups have not recognized this and have different estimates for the lengths...AHA would be t hat there are no short or long sides

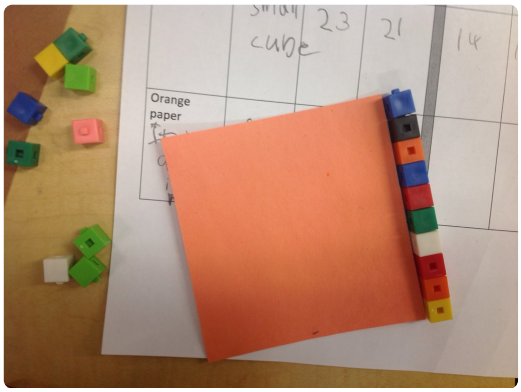




Did this group figure it out?







"It's basically 10 and an inch"

Counting strategies
-one to one, counting by one

Misconceptions
-how to accurately measure

Great discussion by some kids around what a unit of measure is.

Debrief
-strategies for estimation? (benchmarks like their fingers, using previous measurements
-explicit teaching of how to use the ruler
-dealing with the misconception of the accuracy of measuring using the non standard units

-how does modelling using technology help students to learn?

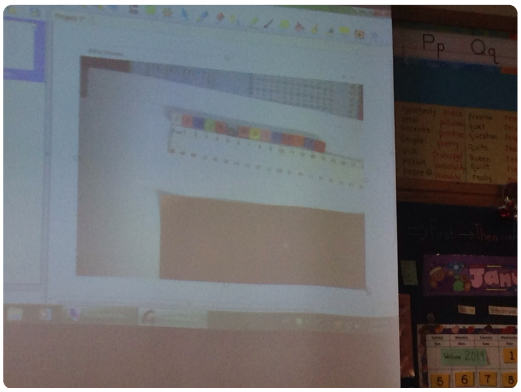
"We can measure the cubes on the ruler to find out how many centimetres there are"

1 cube is one centimetre

-try to use turn and talk as a communication strategy

Tatum- started counting by ones, then counted by twos and modelled this faster strategy

-using the ruler to find out how how long the small cubes are



If