

Manipulatives

PINPOINT



The very act of generating a concrete representation establishes an image of the knowledge in the students' minds.

Robert Marzano

What are Manipulatives?

Manipulatives are card-sorting activities that force students to reason and make decisions.

Students have to manipulate cards into permutations as required by the teacher.

Manipulatives are used in management for team thinking



It makes the game more effective, demanding and fun if there are spurious cards or distractors.

Geoff Petty

Why are manipulatives so effective?

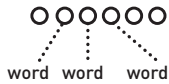
Manipulatives have an effect size of 0.89 which is the equivalent to nearly two extra grades. They achieve this because students:

- are forced to use higher-order thinking
- focus on and get to grips with key concepts and essential facts
- are not hampered by their writing or spelling skills
- develop their thinking by re-arranging the cards iteratively
- can see their thoughts in the emerging order of the cards
- enjoy the game-like characteristics of the activity.

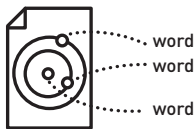
Different knowledge structures for manipulatives

Below are the main types of activities to use for manipulatives. Also included are some ideas without the use of cards.

LABEL



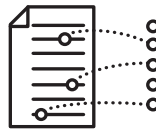
Link labelling card to item, eg. feature on a map, or part of the body.



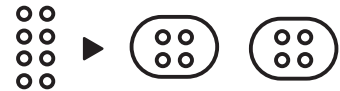
MATCH



Match card to another card. Or match card to words within a piece of text.

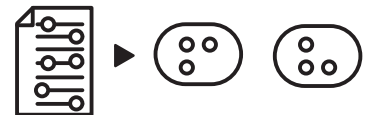


GROUP

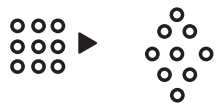


Group cards together.

Identify words in a piece of text, write them onto cards and group.



RANK



Place cards into an order from least to most.



SEQUENCE



Place cards into an order set by the teacher.



COMPLETE



Place cards into a continuation of an order or pattern.



REFERENCES

Marzano, R. et al (1995)
Classroom Instruction that Works
ASCD, Alexandria, USA

Petty, G. (2009)
Evidence Based Teaching
Nelson Thornes, Cheltenham