

STOPS C3 - Lesson Plan

Name

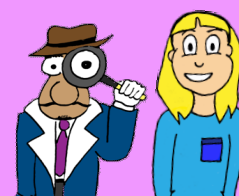
STOPS C3 - Haku the Dragon

Learning Intention

To solve a problem by using "Trial by Improvement"

Resources

Recording materials, eg books and pencils. Coins - silver only for main task. Other coins may be needed to support other groups.



Teaching notes

Show problem to children and ensure that they understand. Allow them to attempt the problem, without the supporting resources. Identify, through children's efforts if possible, that using "trial and error" or "act it out/make a model" would be useful strategies here. For example, we can use coins to model the problem and help us to add. We can also pick a combination of silver coins at random, e.g. 20p, 10p and 5p and see if it makes 45p. We can then pick another random combination.

If possible, identify children who have begun to use a systematic approach, e.g. beginning with 20p. We can use 20p as our first coin, so we could perhaps have 20p + 20p + 5p. This can then be recorded on the sheet or in books. Next, choose 20p + 10p + 10p + 5p and record in a systematic fashion. Ask children what would be logical to choose next. Encourage responses that start with 20p, e.g. 20p + 10p + 5p + 5p + 5p. Encourage systematic recording and making logical choices. Continue modelling as needed and allowing children to continue investigating until all 9 solutions are found.

Key Questions:

- How should we start?
- What should we pick next?
- How should we record this?
- How will we know that we have found all the possible combinations?

Differentiation:

Higher: STOPS C4

Lower: STOPS C2

Extension: Extension on sheet for 50p. Extend to higher amounts as needed e.g. 60p, £1 or even making £100 with only notes.

Lower: What if the monster was 25p?

Solutions:

Roman can use these coins to pay 45p:

- 2 x 20p and 1 x 5p
- 1 x 20p, 2 x 10p and 1 x 5p
- 1 x 20p, 1 x 10p and 3 x 5p
- 1 x 20p and 5 x 5p
- 4 x 10p and 1 x 5p
- 3 x 10p and 3 x 5p
- 2 x 10p and 5 x 5p
- 1 x 10p and 7 x 5p
- 9 x 5p

There are 13 different ways to pay 50p using only silver coins. First add 5p to each of the ways for 45p. The other four possibilities are:

- 2 x 20p and 1 x 10p
- 1 x 20p and 2 x 10p
- 5 x 10p
- 1 x 50p