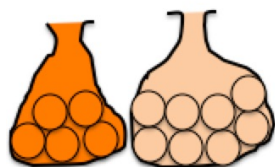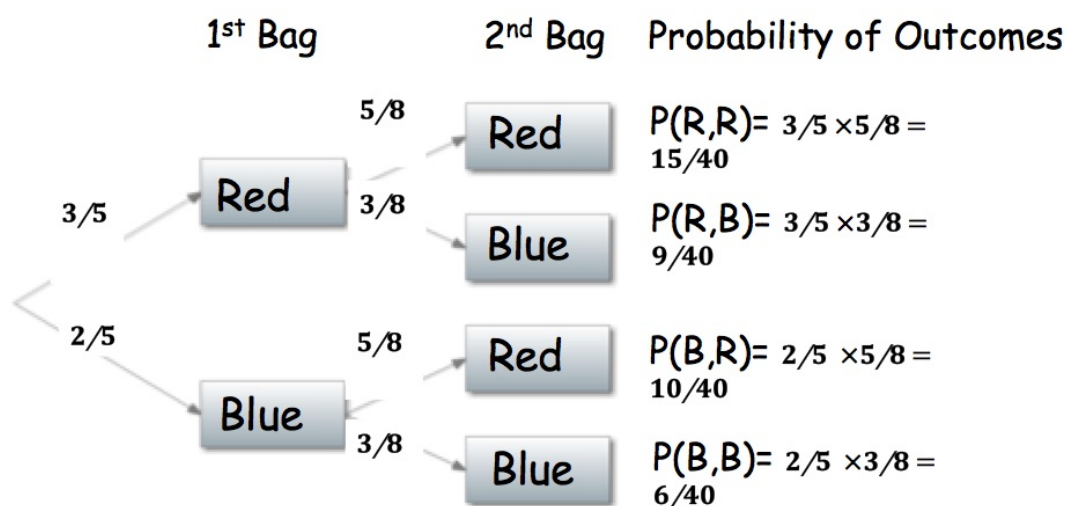## IN THE BAG

You have 2 different bags of marbles.

One bag has 3 Red and 2 Blue the other has 5 Red and 3 Blue.

Mzo picks one marble from each bag.

- What is the probability he picks one of each colour?
- What is the probability he does NOT pick a red?

SOLUTION

1st Bag	2nd Bag	Probability of Outcomes

$$P(R,R) = 3/5 \times 5/8 = 15/40$$

$$P(R,B) = 3/5 \times 3/8 = 9/40$$

$$P(B,R) = 2/5 \times 5/8 = 10/40$$

$$P(B,B) = 2/5 \times 3/8 = 6/40$$

The probability he picks one of each colour = P(R, B) + P(B, R)
$$= 9/40 + 10/40$$
$$= 19/40$$

The probability he does NOT pick a red $\quad$ = P(B, B)
$$= 6/40$$
$$= 3/20$$

NOTES FOR TEACHERS

Why do this activity?
This is a simple probability problem that gives learners practice in using tree diagrams. It could be introduced to review the idea of tree diagrams.

Intended learning outcomes
Practice in using tree diagrams to solve problems involving conditional probability.

Possible approach
Importantly give the problem to the learners to read and to interpret for themselves individually to give them practice in interpreting and using the information that they are given as they are required to do in exams.

After half the learners have drawn a tree diagram and calculated an answer you could ask the learners to work with a partner to explain their reasoning, if necessary to help learners who are struggling, and also to check their working and answers. If there are then pairs of learners who are both still in difficulties you could ask one learner from a pair who are confident about the problem to swop with one learner from the other pair and explain it to them.

Key questions
What is the probability that Mzo draws a red marble from that bag?
What marbles would Mzo draw if he did not pcik a red?

Possible extension
See If this then that   https://aiminghigh.aimssec.ac.za/grades-10-12-if-this-then-that/

Possible support
Learners could have 2 paper bags with coloured cards inside and try drawing on card from each bag without looking.