

# BROWNIE SHARING

## UNIT B Equally partition area, linear, and set models

Strategies students have used:

### LESS ACCURATE

- Trial and Error
- Using known fractions (  $\frac{1}{8}$  and  $\frac{1}{16}$  to estimate  $\frac{1}{10}$  )
- Revision cutting/trimming (may not partition the total amount of brownie as pieces are 'shaved' off)
- Cutting on angles across the pan (not on diagonals)

### MORE ACCURATE

- Folding for half and then half again for 4 and 8 portions
- Cutting each of 8 pieces into 5 to create 40 pieces, then creating 10 groups of 4 small brownie slices
- Partitioning on diagonals (better for 4 and 8 portions) – students struggled to prove equal areas (requires thinking about the area of a triangle)
- Repeated sharing: allocate whole piece, split other pieces to allocate one-half of a piece to the group, share the final piece amongst the ten people
- Rolling the paper to estimate the number of pieces that would be created from a given length of fold (this worked well for estimating size)

## WATCH FOR

- Folding the paper over the previous fold which is slightly less accurate than a back-and-forth fold.
- Folding the paper the number of pieces (such as 5) rather than the number of folds to generate the number of pieces (which would be 4 if vertical folding).
- Overuse of the doubling strategy. The task requires students to move from eighths to tenths because the doubling strategy won't work and it requires partitioning to fifths (not halving).
- A lack of a range of folding strategies.
- Students wanting to cut the pan of brownies into a large number of roughly equal-sized pieces (like you would at home) rather than sharing the entire pan equally in fourths.
- Strategies that students use to prove that the various pieces represent the same fraction of the whole region.
- Students continually repeating a strategy that doesn't work. Ensure that they are made aware of the availability of fresh sheets of paper for each step.