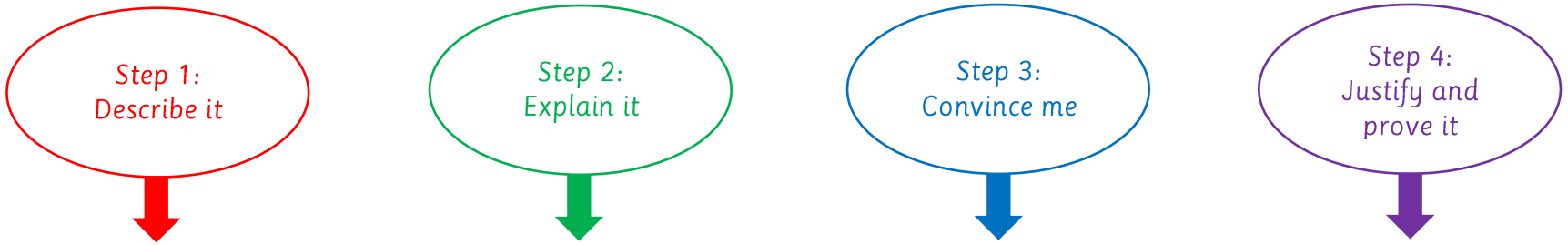
Progression in Mathematical Reasoning



Step 1: Describe it	Step 2: Explain it	Step 3: Convince me	Step 4: Justify and prove it
Children can orally tell you what they did to solve a problem.	Children begin to offer some reasons for what they did. They might represent their idea in another way such as drawing and labelling it to help them explain.	Children work more systematically and make relevant links between mathematical knowledge that support their answer.	Children produce a correct argument that is based on generalisations and they can generate other examples to support their argument.
• First I… then… and… • The pattern looks like… • I solved the problem by… • The strategy I used was… • I know the problem is asking me to… because…	• I noticed… so I… • I know that… therefore… • I decided to… because… • The answer is… because… • I think… because… • I could show this by…	• It must be true because… • It could be because… • It can't be because… • If __ is true, then… • Another strategy I could have used is… • This is similar/different to… • The most efficient strategy would be…	• I can prove that… because I can show… • If __ is true, then… is also true because… • Therefore… • This is always true, because… • Another example of this is…

Questions to encourage mathematical talk and reasoning:

- How did you get…?
- What strategy did you use?
- Why did you…?
- How did you know which operation to use?
- Which key words helped you?
- Why is ___ true?
- How did you do that?
- How can you be sure that…?
- Is there another possible solution?
- Is this always true?
- Can you show me another way?
- Can you explain how…?