[http://nrich.maths.org/6978&part](http://nrich.maths.org/6978%26part)=



**What are you aiming to do?**

**For the task:**

The team has to recreate the row of counters (created by the designer) by asking as few questions as possible.

**As a team:**

* Listening and finding out what others think
* Giving reasons for ideas
* Pulling ideas together
* Finding out whether the group is ready to make a decision.

**Getting started**

You will be working in a team of three. You will need two sets of counters. The image above uses 6 counters of 3 different colours. **Start with just two colours until you have some experience of the task.**

**Choose someone in the group to be the designer.** If you try this task more than once, team members should take turns at playing this role.

**Give one set of counters to the designer and the other identical set to the rest of the team.**

You may also wish to choose someone to be the observer (a really good idea if there are more than two people in the team).

**Tackling the problem**

Without the rest of the group seeing, **the designer creates a line of counters using some or all of the counters available.**

Using the rules for asking questions, and checking that they all agree first, **members of the team take turns to ask the designer questions that will help them recreate the line of counters.**

When all of the team think they have the correct design they can check with the designer and the task ends.

At the end, the observer gives feedback about the way members of the team worked together, highlighting strengths and ways that they could improve next time. The team discuss the feedback and how they think they worked.

**Task Rules:**

* You must agree any question before asking the designer.
* The team can only ask questions of the type listed in the rules.
* The team members must take turns in asking questions.
* The designer can only answer "Yes", "No" or give a number.

**Try to find the pattern using as few questions as possible.**

**Designer guidelines:**

* You do not have to use all the counters.
* The counters should form a line.
* You can only say "Yes" or "No", or give a number as an answer.
* You must only answer questions of the agreed format.
* You only answer a question if the team has discussed and agreed it first.

**Team question rules:**

The team can ask questions about:

* the number of counters,
* the number of counters of each colour,
* the colours of touching counters,
* the symmetry properties of the design,
* the colours, or numbers, of counters to the left or right of a counter.

You cannot ask about the position and colour of a particular counter, for example:

"Is the first counter red?",

"Is the second counter yellow?"

You can ask questions like:

"Is the counter to the left of the red counter green?".

**Observer Guidelines:**

Your role is to:

* identify the times when reasons for ideas are given by members of the team,
* check that everyone agrees before a question is asked,
* check that the questions fit those allowed in the rules,
* check that members of the team take it in turns to ask questions,
* count the number of questions the team asks.