



In her article [Group-worthy Tasks and Their Potential to Support Children to Develop Independent Problem-solving Skills](#), Jennie Pennant outlines the benefits of working on mathematics as a group, arguing that group work also supports children's individual problem-solving abilities. Almost all NRich tasks could be tackled by a group of learners, as opposed to an individual or pair, but [the Developing Group-working Skills feature](#) is a collection of activities which have been designed especially to develop children's *group-working skills*.

How can we help children get better at group work?

We cannot expect learners to be able to work well in groups overnight. We must help them develop the skills that are needed for successful group work and give them many opportunities to put these skills into practice. In her article [Developing Good Team-working Skills](#), Jenny Piggott offers the following list of skills related to working collaboratively, based on those found in Elizabeth Cohen's book 'Designing Groupwork':

- Listening
- Asking questions - making sense of your own understanding
- Explaining by telling how and why
- Helping others - by responding to their needs
- Helping others - to do things for themselves
- Sharing knowledge and reasoning
- Finding out what others think - asking for, listening to and making sense of their ideas
- Reflecting on and making use of what has been said
- Being concise - communicating thinking
- Giving reasons for ideas - communicating reasoning
- Allowing everyone to contribute
- Pulling ideas together - sharing, listening, valuing all contributions
- Finding out if the group is ready to make a decision - consensus making.

Jenny suggests that these collaborative working skills can be developed through particular group activities and she offers six categories of team-building activities that can be used to focus on a range of the different skills. Jenny's article links to several classroom activities within each category and we have chosen a subset of these in our [Group Work feature](#) which exemplifies the full range of skills.

The featured activities

For more details about the kinds of task and further example activities, please see [Jenny's article](#).

[Number Match](#), a Stage 1 task, is only complete as an activity when every member of the group has completed their own part. The task is undertaken in silence which helps group members respond to the needs of others. [Fraction Match](#), aimed at Stage 2 and above, is done in exactly the same way.



In [Counters in the Middle](#), a 'designer' makes an arrangement of counters without the team seeing it. The team has to agree on the final pattern by asking the minimum number of questions, which requires them to listen to each other, give reasons for their opinions and pull ideas together.

In [En-counters](#), each learner completes a picture themselves, based on the designer's instructions, but with support and advice from other members of the team. This therefore encourages children to respond to the needs of others, help others do things for themselves and explain by telling how.

[Guess the Houses](#), a Stage 1 activity, depends on learners sharing reasoning, listening to opinions, reflecting and pulling ideas together. The team is required to guess the rule in the minimum number of questions.

In [What Shape?](#), one member of the group is trying to find out what is on their chosen card (the unknown) by asking as few questions as possible. This task therefore depends on group members being concise, asking questions, listening and reflecting on what has been said.

[Arranging Cubes](#) requires the group to recreate a 2D arrangement of cubes which matches all the information on their cards without showing each team member's information to anyone else. Among other skills, learners must allow everyone to contribute, share knowledge and reasoning, reflect on (and make use of) what has been said and come to a consensus.

Submitting solutions

Due to the nature of these tasks, it will be a little difficult for children to submit solutions in the usual sense to the live problems in this feature. However, we would love to hear about how the activity helped them work better as a group. It could be that you as the teacher summarise your observations or it might be that the learners themselves can articulate their thoughts. We would be delighted to hear from you. You may find it helpful to use the list of skills above as an assessment 'checklist' (see [Skills.doc](#) or [Skills.pdf](#)).

What next?

Having tried these activities which aim to build learners' group-working skills, why not have a go at other NRICH activities using a group-work approach? In May 2010, we created several group-worthy tasks, based on [Jo Boaler's](#) research on Complex Instruction, and in February 2010, all our problems were designed with collaborative mathematics in mind. You can find these activities and accompanying articles by clicking 'Past features' in the



top banner, then following the 'Past Monthly Issues' link, or by clicking [here](#). Of course, as we mentioned at the start of this article, almost any NRICH activity could be worked on by a group, so you could encourage children to tackle any of our tasks using their group-working skills.

Taking the tasks home

We have rewritten some of these tasks so that they are suitable for just one child to do together with an adult. We've collected these [here](#).

References

Cohen, E. G. (1994) *Designing Groupwork - Strategies for the Heterogeneous Classroom*. Second Edition, Teachers College Press.