



Colour Crystal Block Set - Teacher's Guide



- The acrylic block and mirror set opens up a range of possibilities to introduce, extend and consolidate children's learning in the early years and primary age groups.
- The blocks are beautiful to look at and handle and will appeal to children and adults alike.
- The support notes and suggested activities for this set have been written to show progression in children's learning as they are encouraged to create 2-D images, build 3-D structures and design using pattern and symmetry.
- The notes have not been written to support any particular curriculum requirements – they focus on developing children's creativity and critical thinking and their communication and language skills. They do, however, incorporate mathematical development, scientific understanding, physical capability and design and artistic skills.
- The activity cards are in full colour on one side and show line diagrams on the reverse to extend the complexity of the activities. The suggested questions to ask and the extension activities outlined will ensure that the acrylic blocks set becomes an integral part of your planning for teaching and learning.





Creativity and critical thinking

- 'Create a Crocodile' introduces the idea of imaginative ways to use the acrylic blocks. As they handle the different blocks children will see that they can be used to create 2-D images as well as being used for building.
- Children will select, match and order the appropriate blocks to create the picture of a crocodile. Using the second side of the card, which shows outlines of the block shapes but not colour, will extend the children's capacity for critical thinking.
- Encourage the children to use the blocks to create an environment for the crocodile and to make other creatures.

Communication and language

- As the children are handling the acrylic blocks talk to them about the colours, shapes and patterns they can see.
- Use 'Create a Crocodile' to build on young children's fascination with the creatures. Provide a range of books and reference materials for them to use. Find out what the children know about crocodiles and encourage them to share their knowledge with other children and adults in conversation.
- Encourage imaginative thinking by asking 'Can you imagine what would happen if...?'



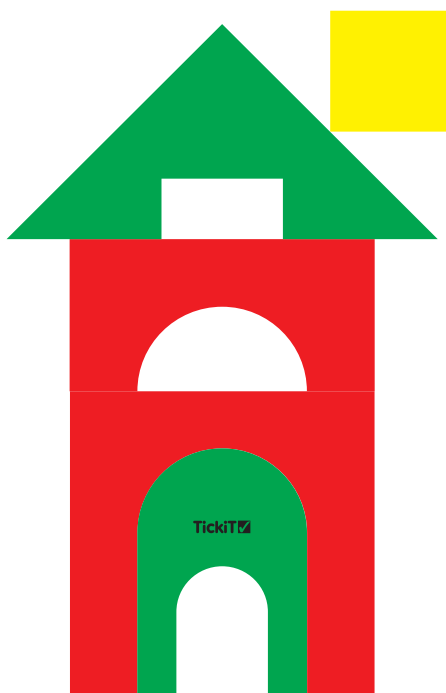


Creativity and critical thinking

- 'Create a House' is a starting point for using the acrylic blocks in imaginative picture making. Children will see that the different shapes of the blocks can be used to represent everyday objects.
- This activity uses blocks which will require the children to look very carefully at the detail of the shapes and to recognise the relationship between the shapes and spaces.
- Encourage the children to use the blocks imaginatively to create their own scenes from the world around them.

Communication and language

- 'Create a House' provides opportunities to develop children's descriptive language as they create the image of the house with its roof, chimney, windows, walls and door. Talk to the children about the shapes they are using by introducing mathematical language - the names of shapes and other attributes such as corner, side, line, edge, space, straight, curve.
- Houses and homes are very important to young children. Encourage them to make comparisons with homes familiar to them as they create the house using the acrylic blocks.
- Ask the children to tell you about the similarities and differences between the house they have created and their own homes.



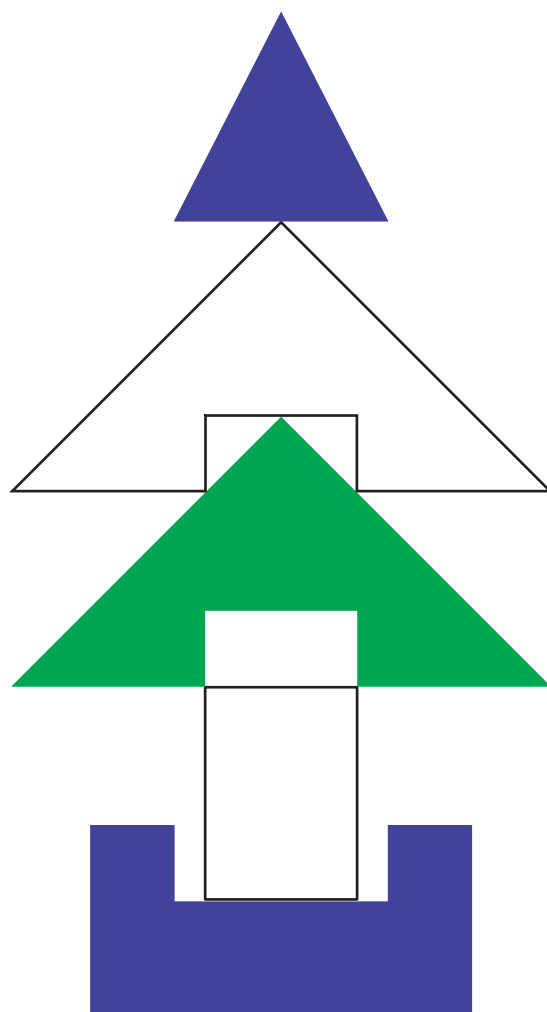


Creativity and critical thinking

- In 'Create a Christmas Tree' the juxtaposition of the acrylic blocks is more complex and the blocks interconnect in different ways which will require the children to think carefully about how to place them. Take note of how the children select and test the blocks they choose to use, and encourage them to learn alternative ways of thinking from other children in the group.
- Talk to the children about what happens if they place the mirror vertically down the centre of the Christmas tree. Introduce them to the notion of symmetry.
- Ask the children to work with a partner to investigate whether they could use a different range of blocks to create a tree.

Communication and language

- 'Create a Christmas Tree' will evoke memories of special family celebrations which children will wish to talk about. Encourage them to recall special events and to share them with the group. Think about special occasions in your early years setting or school. Help children to develop their recall abilities by asking 'Do you remember when...?'
- Talk about other symbols or objects which are used in special events or celebrations. Ask them to create other special images using the acrylic blocks.
- As the children work on their representation of the Christmas tree, model positional language for them to use – on top of, underneath, below, above, inside. Encourage them to use this language as they create the Christmas tree.



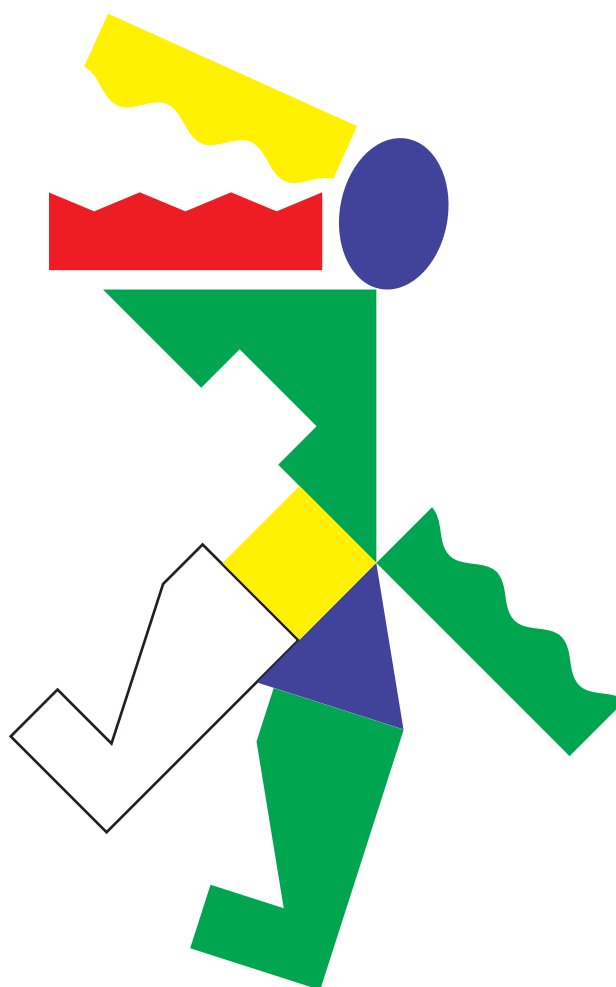


Creativity and critical thinking

- In 'Create a Dinosaur' the acrylic blocks are used in less obvious ways - at different angles and in more abstract positions. This will test children's ability to think creatively about how the blocks could be used.
- Observe how accurately children select the correct blocks, and how they evaluate and modify their choices. Encourage them to apply a range of strategies to help them make accurate choices.
- Ask the children to explain their ways of working to others in the group. This will help them to recognise their own ways of thinking and to understand the thinking of others.

Communication and language

- Ask the children what they know about dinosaurs and show them pictures and books about dinosaurs to use as a reference. Talk about the shapes, both regular and irregular, used in 'Create a Dinosaur' and use a range of positional language to describe how the blocks are placed – next to, underneath, on top of, angle, straight, upright, tilted.
- Ask the children to give their opinions on the image created in 'Create a Dinosaur'. Could they improve the picture by making changes to it or could they create a different dinosaur?
- Encourage the children to ask each other 'Have you thought about...?' or 'Could you try...?'





Creativity and critical thinking

- Although the 'Build 3 Bridges' card looks easy to complete, if children are presented with the line drawing only, the task becomes more complex. They need to look very carefully at the detail of the acrylic blocks in comparison with the diagram to ensure that the three bridges are symmetrical.
- Introduce the mirror to the activity and ask the children to find the line of symmetry in the model they have created? Can they find a line of symmetry in each of the 3 bridges?
- Look at books, postcards and images of bridges on the internet and ask the children to create a bridge of their own using the acrylic blocks.

Communication and language

- Introduce vocabulary such as arch, curve, high, low, surface, balance, stable, as the children are creating the three bridges.
- Ask questions which will encourage them to check the accuracy of their building. Try 'Are you sure that...?' 'How do you know that...?'
- With the whole group, talk about bridges the children can see in the local environment or further afield – bridges over rivers, road bridges or pedestrian bridges. Take the opportunity to practise the vocabulary which has been introduced when building the bridges with the acrylic bricks.



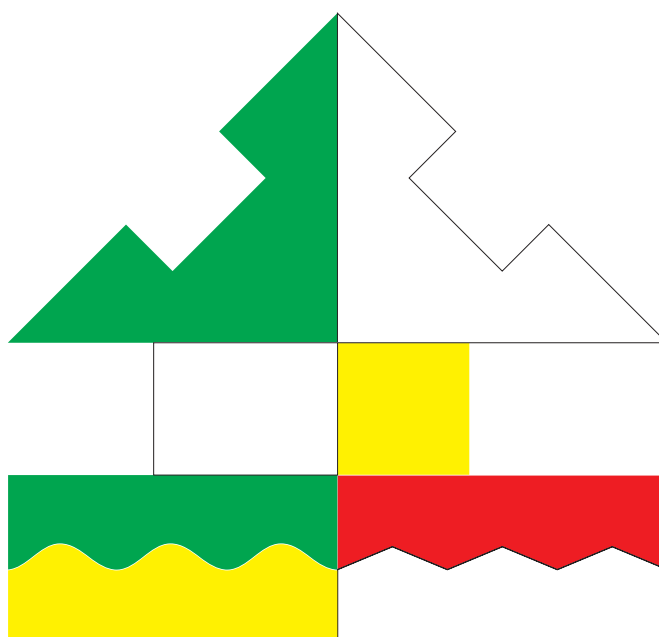


Creativity and critical thinking

- 'Build a Yacht' is the first of the 3-D cards to be used with the acrylic blocks. Although creating this model looks simple, it requires careful identification of the correct blocks and a steady hand when balancing the components on top of one another. Building the yacht will encourage children to persevere when they need to test and re-test their skills in order to succeed. This activity requires an increased capacity for accuracy and problem solving.
- Encourage the children to think about how they could keep a record of their finished construction. Provide a digital camera so that they can record their work using the acrylic bricks and see the progress they make over time.
- Try holding the mirror upright, and at a right angle to the yacht, along a central vertical line. Talk to the children about what they can see. What happens if they change the angle of the mirror?

Communication and language

- Explain to the children that the acrylic blocks can be used for constructing models as well as for imaginative picture making. Talk to them about the need to look carefully at the coloured pictures and plans in order to select the necessary blocks. Ask the children how they think they can make sure they have the right blocks before they start building. Encourage them to listen to others' advice and points of view.
- Ask questions which encourage children to plan their activity in advance. Try 'Have you thought about ...?' 'What else do you think you need?'
- Introduce scientific and mathematical vocabulary as you explore using the mirror together. Talk about mirrors and reflections and different angles.



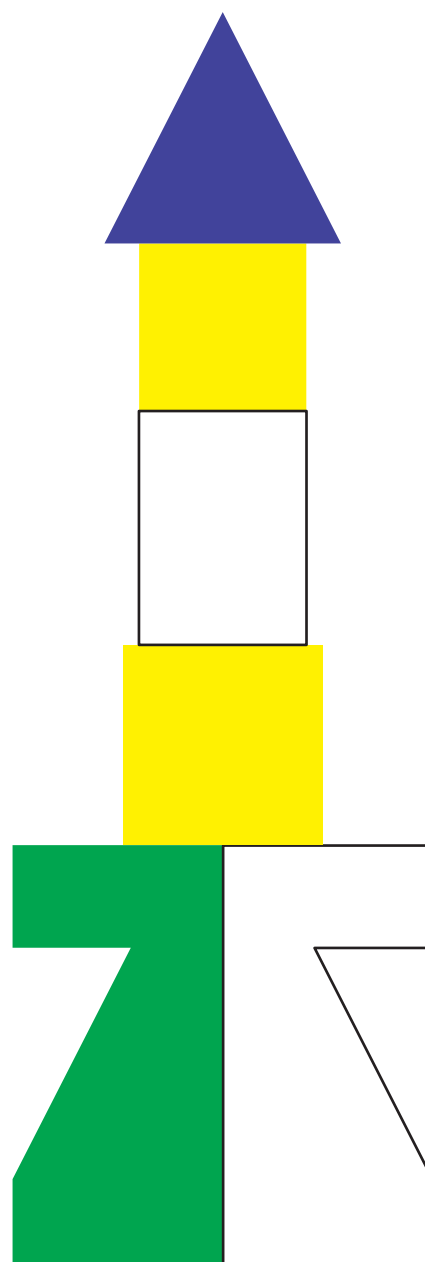


Creativity and critical thinking

- 'Build a Rocket' requires children to discriminate closely between the bricks and to use their sense of spatial awareness accurately to create the finished product. Using the outline plan will require them to think carefully and laterally about which shapes to use.
- Introducing the mirror to the activity and asking children to find the line of symmetry in the rocket will lead on to finding lines of symmetry in a square, rectangle and triangle.
- Ask the children to create other simple vertical structures like the rocket and to create outline plans for other children to follow.

Communication and language

- >As the children use 'Build a Rocket' encourage them to work with a partner, taking turns in being the builder and the person giving instructions of what to do next.
- Introduce vocabulary which helps children talk about the similarities and differences between the acrylic blocks –smaller, bigger, same as, different from, longer, shorter, wider, narrower.
- Look at a range of plans and diagrams with the children and help them to read and understand the information in the plans and diagrams.



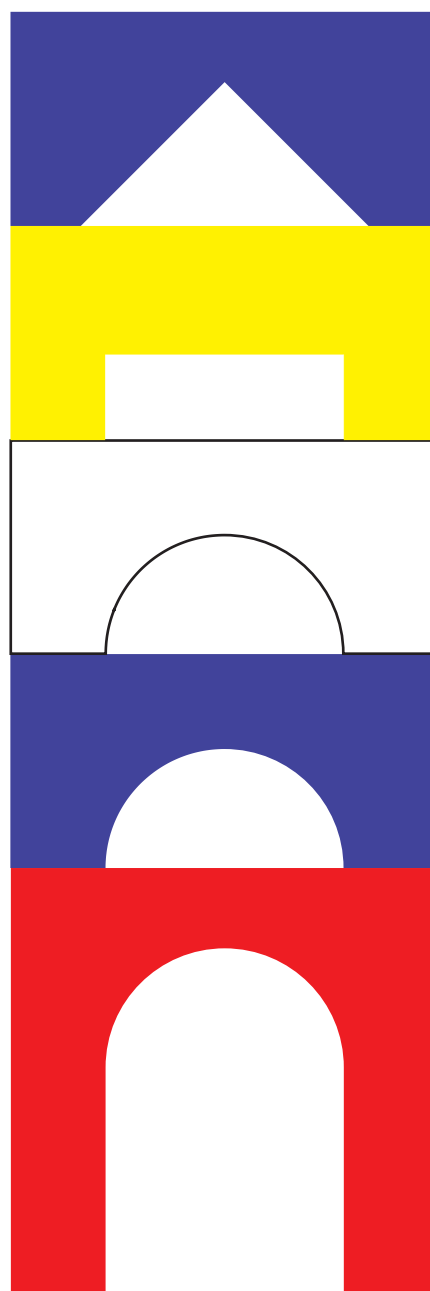


Creativity and critical thinking

- 'Build a Tower' is an activity which children can become involved in at two levels. The coloured illustration, while requiring concentration and good hand-eye co-ordination, is fairly straightforward in terms of selecting the correct blocks to build with. The line diagram, however, requires a logical approach to the selection and use of each of the levels of the tower.
- Observe how individual children set about building the tower. Do they select the blocks first? What happens if they realise they have used an incorrect block? Ask individual children to share their building strategies with other members of the group to encourage sustained shared thinking.
- Ask the children to build towers using the different levels of the illustrated tower in a different order. How many different arrangements of the blocks can the group create? Take photographs of the different towers for others to use.

Communication and language

- Using 'Build a Tower' is the perfect way to extend children's language and vocabulary about colours. The tower uses each of the colours in the set of blocks and a clear acrylic block. Have a conversation with the children about the aesthetics of the blocks and talk about which ones are their favourites, and why.
- Introduce the mathematical vocabulary needed to describe the spaces created by the blocks used in 'Build a Tower'. Talk to the children about the value of thinking about spaces as well as shapes when constructing.
- Introduce an element of possibility thinking into this building activity. Ask 'How many more levels do you think you could add?' 'What do you think would happen if...?'



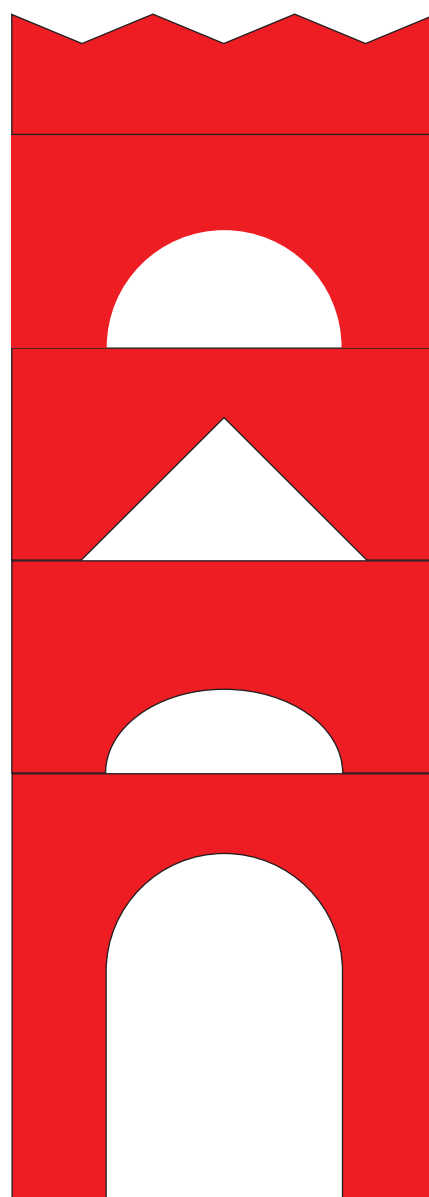


Creativity and critical thinking

- For this activity provide only the red blocks from the acrylic block set. Ask a child or two children to look carefully at the coloured drawing of the red tower, to remember the positions of the different blocks and to create the red tower from memory. See how long it takes for them to create an accurate model of the red tower.
- Introduce the mirror into the activity and ask the children whether or not they can find a line of symmetry in their model. Ask them if they can explain why this has happened. Do any of the levels have a line of symmetry?
- Ask the children to look at the set of acrylic blocks and predict whether or not it would be possible to build a blue, yellow, green or clear tower.

Communication and language

- Look at pictures and books which show towers in real life and talk to the children about what they know about these tall structures. Introduce vocabulary such as floors, levels, storeys, foundations, strength, stability.
- Set up a barrier between an adult and one or two children who have access to the acrylic blocks but not the image of the red tower. Ask the children to listen carefully to your instructions when you describe what they need to do to build the red tower. Compare their results with the image of the red tower when they have finished.
- Ask the children if they could give each of the red blocks a name which matches their description and which would make it easier to describe the blocks to themselves or to the other children in the group.



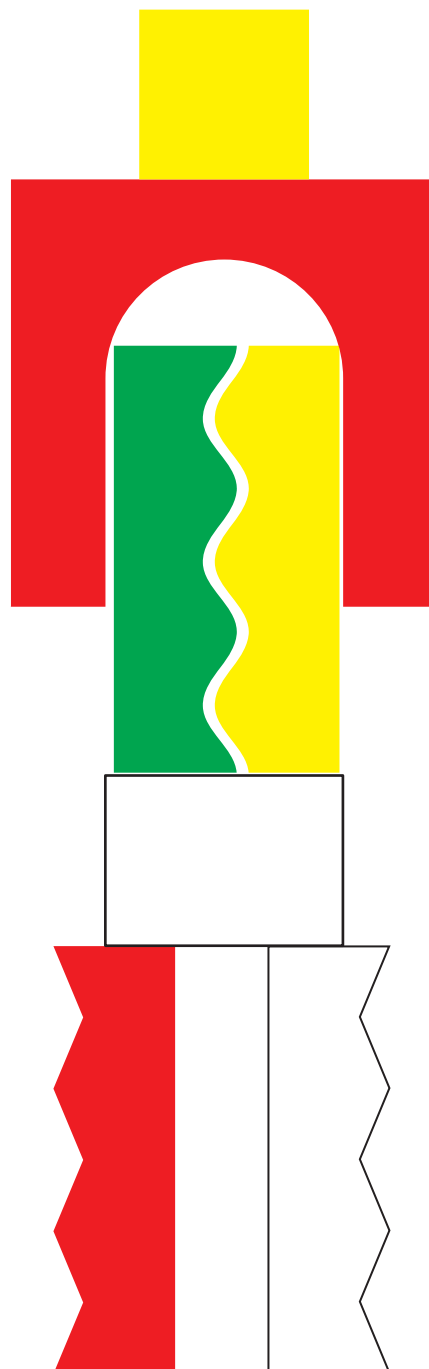


Creativity and critical thinking

- 'Build a Robot' will encourage children to think about how they use the acrylic blocks more creatively and in different combinations. Ask them if they can build a robot or a monster in different ways.
- 'Build a Robot' could be made into a more complex problem solving activity by providing the children with the necessary acrylic blocks and asking them to build a robot, working individually or in pairs, without having seen the illustration first. They could then compare their results with the illustration or line plan or use the card as a guide to completing their robot.
- Ask the children to think about how they could create 2-D pictures or 3-D constructions using the ideas in the robot design for legs, arms, bodies and heads. Ask them what they think would happen if they wanted to use a round acrylic block as a head on a 2-D picture or a 3-D model? Would it work? Could they make a clown, a giraffe, a horse, a runner or a diver in 2-D or 3-D?

Communication and language

- Building the robot will provide opportunities for children to use descriptive and mathematical positional language - on top of, underneath, below, together, apart, vertical, horizontal.
- Ask the children to work in pairs taking turns to be the person who describes the blocks which are required to build the robot, and the person who listens to the description and selects the correct blocks to build the robot. See who describes and listens best.
- Ask the children to think about the adventures their robot might have. Encourage them to ask 'Can you imagine if...?' How would the robot feel...?'



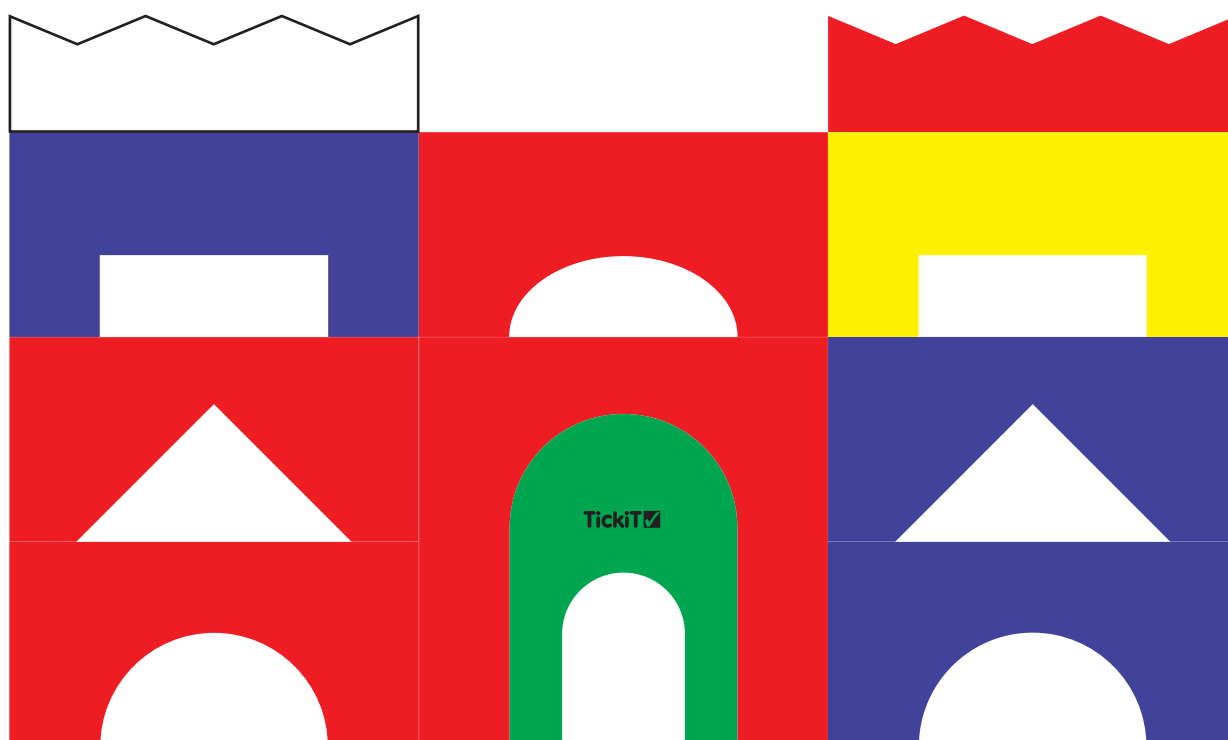


Creativity and critical thinking

- 'Build a Castle' will build on children's interests and fascinations about castle – real and fantasy. Different countries and different cultures will provide examples of castles for children to talk about and create using the acrylic blocks. Encourage children to build castles using their real-life experiences and their imaginations.
- 'Build a Castle' uses a greater number of acrylic blocks and poses some different challenges when constructing. The activity provides the opportunity to observe children's strategies for planning, building and evaluating their construction. If children work in pairs they will share these strategies and learn from one another.
- The castle itself and each of the three sections all have a line of vertical symmetry which children can discover using the mirror in the set.

Communication and language

- 'Build a Castle' is an activity which will foster the use of a wide range of mathematical, positional and descriptive language and vocabulary. As the structure of the castle is regular and based on three sections, encourage children to talk about the order in which they build and to use first, second, third and so on as they build.
- By talking to the children before they begin to build their castle you can help them develop their language for thinking and planning. Encourage them to communicate their plan for completing the construction, either verbally or in a simple written list.
- Set up a barrier between an adult and one or two children who have access to the acrylic blocks but not the image of 'Build a Castle'. Ask the child/children to listen carefully to your instructions when you describe what they need to do to build the castle. Compare their results with the image of the castle when they have finished.



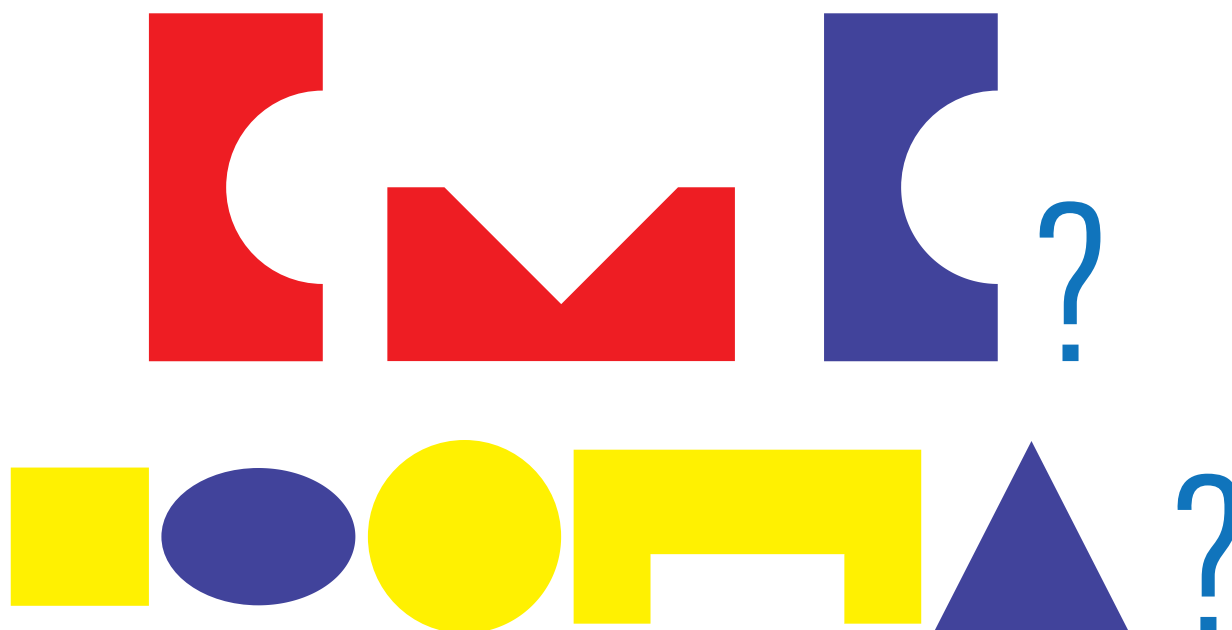


Creativity and critical thinking

- Recognising and using patterns is an essential skill in developing children's creative and critical thinking. Ask the children to look at the illustration of the complete acrylic blocks set and to think about what patterns they could make using the blocks.
- The first of the patterns in 'Design Patterns' asks children to select the correct acrylic block to complete the simple pattern. Children may find this easier if they are using the line diagram on the reverse of the card.
- The second pattern in 'Design Patterns' is more complex as the pattern focuses on repeating colours. The activity asks children to complete the pattern by selecting an appropriate block to come next. This will be easier if children are using the coloured side of the card. Ask the children to complete the pattern as far as possible. Encourage them to devise more patterns of their own using the blocks.

Communication and language

- Encourage children to use descriptive and mathematical language when working on the patterns in 'Design Patterns' – next, before, after, first, second, third.
- Ask them to work in pairs on patterns which they have created, asking their partner 'What comes next?' or 'Can you find the missing block?'
- With the children look for patterns in the environment, both indoors and out of doors and talk about them. Look at brickwork, wallpaper, carpets, and patterns on clothing or curtains.



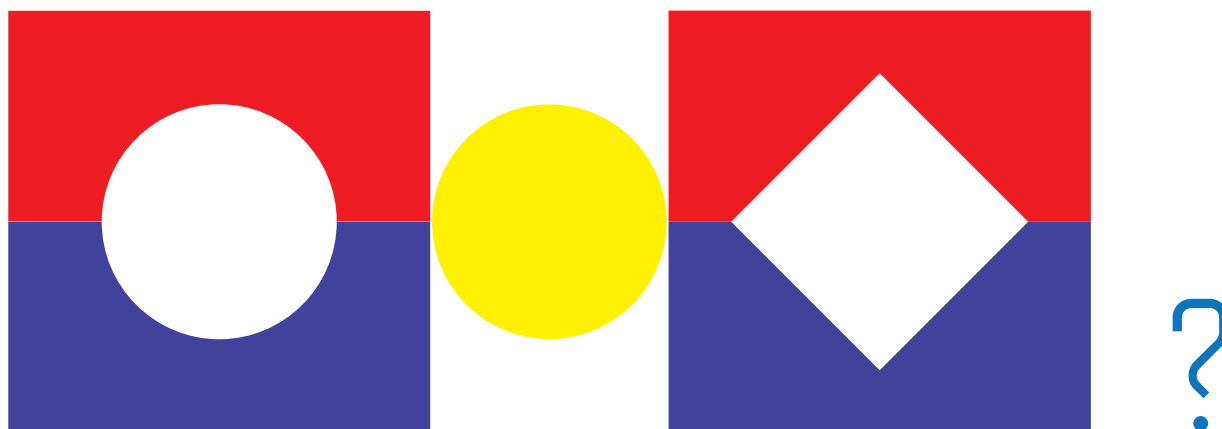


Creativity and critical thinking

- 'Design a Block Pattern' requires a higher level of logical thinking. The pattern uses the components of the eight squares which make up the whole acrylic block set. The first task for the children is to complete the eight squares of shapes in the set. Ask them to complete this activity without using the illustration in the first instance.
- Ask the children to look closely at the way in which the shapes in each of the squares fit together and to memorise the positions of the component shapes. Play games with the children where you ask them to identify the missing shape which you have removed from one of the squares. Encourage them to play this game independently within a small group.
- The activity in 'Design a Block Pattern' asks the children to select the missing acrylic block to complete the pattern. Ask the children to extend the pattern as far as possible.

Communication and language

- Provide a range of illustrated examples of block patterns from different religions and cultures. Talk with the children about the patterns, how they are created and their similarities and differences..
- Lay out a pattern using the acrylic blocks and ask the children to take turns in removing one of the blocks out of sight of the other children who then have to describe the block which they think is missing from the pattern.
- Encourage the children to use prediction skills in their pattern making by asking 'What think might come next?'

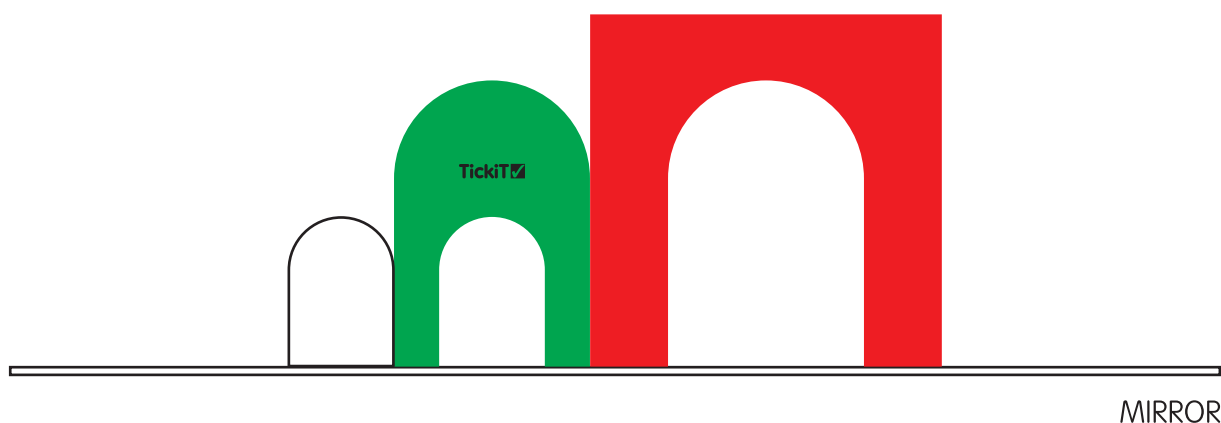
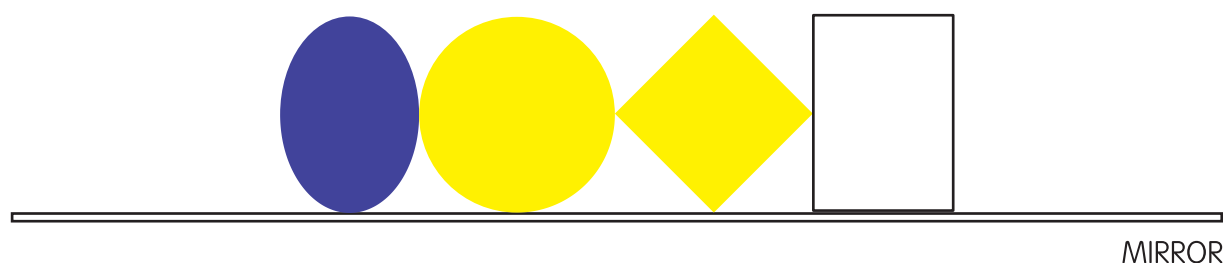


Creativity and critical thinking

- Using the mirror provided with the acrylic blocks set adds a new dimension to the free play and discovery which the children will experience using the acrylic blocks set. Initially, encourage the children to experiment with the blocks and the mirror to see the effects they can achieve.
- 'Design with a Mirror 1' introduces simple symmetry by asking the children to place four blocks along the upright mirror and to observe what happens. By using the line of horizontal symmetry they will see the symmetrical image they have created.
- The second activity on 'Design with a Mirror 1' uses the three arched bricks to create a symmetrical image. Talk to the children about the reversed image they see. Ask the children to draw the symmetrical images they have created and to continue to create more images of their own design.

Communication and language

- Use 'Design with a Mirror 1' to engage children in conversation about what they can see when they use the acrylic blocks and the mirror to create symmetrical images.
- As the children complete the activities in 'Design with a Mirror 1' ask them what they can see and what they think is happening. Model descriptive, mathematical and scientific language as they investigate the patterns they create.
- Encourage the children to predict what they think they will see in the mirror as they create patterns and images of their own. Record their thoughts and ideas and display them alongside photographs of their investigations.



Creativity and critical thinking

- Understanding that there are many different lines of symmetry in the world around us requires more complex thinking and 'Design with a Mirror 2' introduces children to the concepts of a line of vertical symmetry and a line of diagonal symmetry. The first activity asks children to create a symmetrical design based along a line of vertical symmetry using the mirror in the set and the second uses a line of diagonal symmetry. Encourage the children to create other designs using different lines of symmetry.
- Photocopy the two activities on 'Design with a Mirror 2' and ask the children to complete the symmetrical image using only the blocks and not the mirror. This will show how well they have begun to understand symmetry.
- As a further extension activity, set up arrangements of the blocks along a line of symmetry on a sheet of paper and ask the children to use their thinking skills to draw the rest of the symmetrical image.

Communication and language

- This activity will provide the opportunity to introduce high levels of vocabulary which the children will need to know and use in order to articulate their reasoning about symmetry – reflection, horizontal, vertical, diagonal, line of symmetry, reversal.
- Encourage the children to look for and describe in words, both spoken and written, pattern and symmetry in the world around us – faces, bodies, in nature, in works of art and in design.
- Have fun as you and the children explore your room or outdoor space with a mirror looking for signs of symmetry. Make a display of your findings – photographs, transcripts of conversations, poems or stories the children have written.

