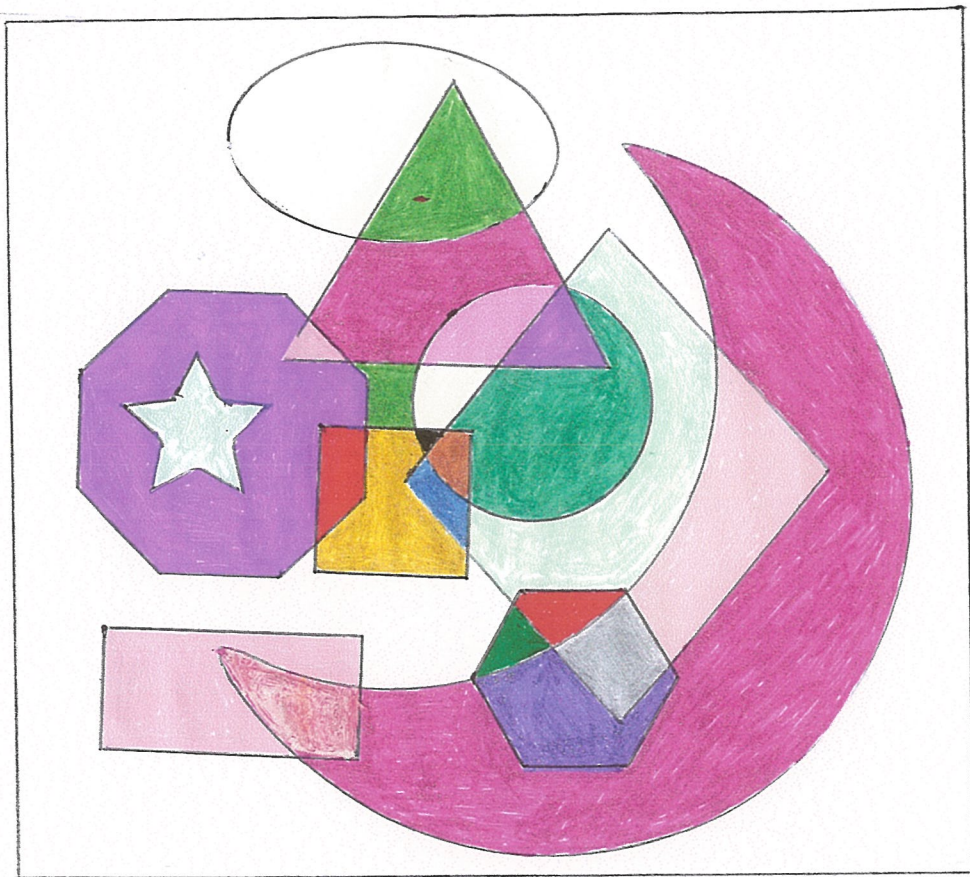


# BRAIN EXERCISES

## CREATING NON DOMINANT HAND DESIGNS USING OVERLAPPING MATHEMATICAL SHAPES



By

GARETH ROWLANDS

Colourful designs to improve memory retention

## Contents

Articles      Pages 1 to 5

Introduction to the resource   Page 6

Materials required      Page 7

Guide to Neurobic exercises   Pages 8 to 13

Examples of non dominant hand designs   Pages 14 to 25

Design exercises 1 to 10      Pages 26 to 35

Design exercises 11to 20      Pages 36 to 45

Design exercises 21 to 30      Pages 46 to 55

Design exercises 31 to 40      Pages 56 to 65

Design exercises 41 to 50      Pages 66 to 75

Design exercises 51 to 60      Pages 76 to 85

Design exercises 61 to 70      Pages 86 to 95

Design exercise    71      Page 96



# Neurobic exercises

*A neurobic exercises project sidesteps and overcomes COVID-19*

Words ALAN DAVIES

**T**he dictionary describes neurobics as activities or mental (cognitive) tasks that stimulate the brain and help prevent memory loss.

Using his website [www.battledementia.co.uk](http://www.battledementia.co.uk), a St Albans mathematician is winning the battle against COVID-19 by providing care homes in Hertfordshire and care centres worldwide with his brain stimulating neurobic exercises.

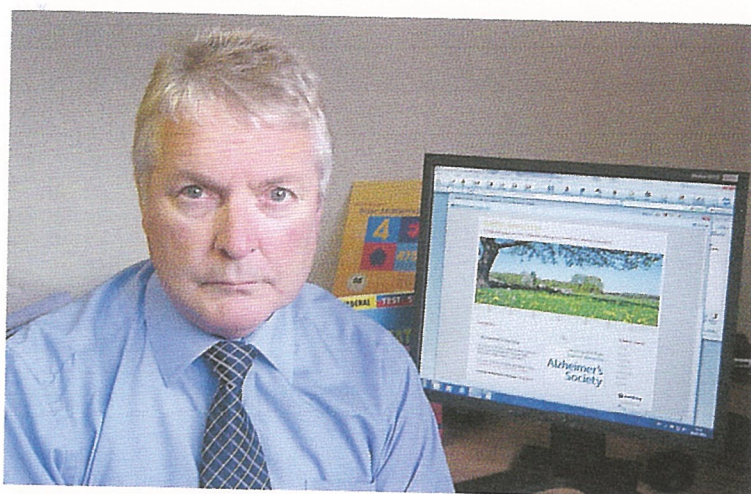
Before the outbreak of the pandemic, Gareth Rowlands, a campaigner for people living with memory loss such as Alzheimer's disease and dementia, was able to organise workshops at care homes, dementia cafes and doctors' surgeries throughout the county.

He decided to combat the visiting restrictions posed by COVID-19 by using his website.

According to recent and ongoing research, neurobic exercises stimulate the brain, improve one's memory and enhance one's quality of life.

The brain loves a challenge, especially a change in routine.

On the opening page of his



Gareth Rowlands, a mathematician and a personal campaigner for people living with memory loss such as Alzheimer's disease and dementia

website, Gareth's resource booklet '*Your Brain Matters*', which contains hundreds of memory boosting exercises, can be downloaded free of charge.

The brain exercises, which act like a workout for the brain, involve using one's non-dominant hand to write symbols, letters, words, and sentences including drawing simple diagrams.

Attempting the exercises daily for 10 to 15 minutes can reap the benefits of improved memory,

alertness, greater awareness and happier moods, which in turn enhance the quality of life.

Other examples of neurobic exercises include using one's non-dominant hand while eating, cleaning one's teeth, doing up buttons while dressing, combing or brushing one's hair, opening and shutting doors and containers, in addition to using two of one's senses at the same time, such as listening to music whilst drawing a picture. **I**

## SIMPLE BRAIN EXERCISES TO TRY

PICTURE: GETTY IMAGES / ISTOCKPHOTO / JULIA SUDNITSKAYA



- Firstly, if you are right handed, your usual hand is your right hand. If you are right handed, your unusual hand is your left hand. If you are left handed, your usual hand is your left hand. If you are left handed, your unusual hand is your right hand. All you need is a pencil and paper for this exercise. Have fun!
- Write down your first name with your usual hand. Write down your name with your unusual hand. Write down your name backwards with your usual hand. Write down your name backwards with your unusual hand.
- Make a rough sketch of the letter A with your usual hand. Make a rough sketch of the letter with your unusual hand.
- Write down the number 564 with your usual hand. Write down the number with your unusual hand. Write down the number backwards with your usual hand. Write down the number backwards with your unusual hand.



# Neurobic Exercise Workshop

On Monday 15 May Gareth Rowlands led a fantastic workshop to coincide with Dementia Action Week 2023.



During the workshop, attendees were able to boost their memory through an energising and vivid workshop delivered by Gareth, a local mathematician.

Gareth stresses the importance of both mental and physical exercises, to stem the onset of the disease and dementia.

We hope all that attended are able to share these exercises with others.



# Exercises for the memory

THE World Health Organisation recommends eating a minimum of 400 grams of fruit and vegetables a day to lower the risk of serious health problems such as heart disease, stroke and some types of cancer.

Regular physical exercises can keep our bodies fit and healthy as well as a number of other personal routines for example brushing our teeth at least once a day to prevent tooth decay.

But are we looking after our brain? The human brain has been described as the most complex object in the universe. It is responsible for everything we do, think, feel and say.

The brain makes you who you are and enables you to go about your daily activities. The brain is the crown jewel of the human body.

Gareth Rowlands, a St Albans mathematician, has recently compiled ready made exercises sessions which stimulate the brain and prevent memory loss especially if attempted daily for about fifteen minutes. The exercises are called Neurobic exercises which challenge the brain and provide an ideal workout for the brain.

Ongoing research into the functions of different part of the brain confirms that attempting Neurobic exercises regularly prevents the onset of Alzheimer's disease and dementia.

Although routine puzzles such as crosswords, scrabble and Sudoku are themselves stimulating they do not provide the sufficient challenges and new surprises that the brain craves for. Not only are the exercises easy

Gareth Rowlands, a St Albans mathematician, has recently compiled exercise sessions which stimulate the brain and prevent memory loss, especially if attempted daily for about 15 minutes. Here his pioneering new technique is explained...

and convenient to access in his new resource they provide considerable fun and entertainment and it is easy to write similar exercises to suit peoples' different needs and circumstances.

By visiting the opening HOME page of his website [www.battledementia.co.uk](http://www.battledementia.co.uk) you can download free the daily Neurobic exercises sessions described in his resource booklet 'Neurobics at your fingertips'.

On the same page there are two other memory resource booklets 'Our Brain Matters' and 'At Home With Neurobics'. The Neurobic exercises emphasise the use of your non dominant hand and involve the use of words, sentences, numbers, proverbs and diagrams in an amusing way providing fun and can be attempted individually, in pairs, in groups or as a family.

There is a section in the booklet called Non Dom Designs which gives an opportunity using your non dominant

hand to copy, draw and colour shapes to make artistic designs which the author has called Non Dom designs.

Gareth organizes Neurobic exercises workshops throughout Hertfordshire by visiting care homes and dementia cafes using his own Neurobic exercises resources.

He maintains his efforts will help people living with memory loss to battle Alzheimer's disease and dementia. His new resource booklet 'Neurobics at your fingertips' will help carers

He has pioneered the use of Neurobic exercises to combat the onset of Alzheimer's disease and dementia and will leave no stone unturned to fight the debilitating disease affecting so many.

There are currently 65 million people living with dementia worldwide and there are nearly 10 million new cases every year. Dementia is currently the seventh leading cause of death among all diseases and one of the major causes of disability and dependency among people destroying lives globally.

Dementia is an umbrella term for a range of progressive conditions that affect the brain.

Each type of dementia stops a person's brain cells (neurons) working properly in specific areas, affecting their ability to remember, think and speak.

Doctors typically use the word "dementia" to describe common symptoms – such as memory loss, confusion, and problems with speech and understanding – that get worse over time.



Gareth Rowlands



# Author celebrates writing more than 50 mathematics books

Retired teacher has written for schools as well as to prevent Alzheimer's disease

**A**s children prepare to return to school for a new academic year, an author from St Albans is celebrating publishing 50 mathematics books to help people learn.

Gareth Rowlands is a retired Mathematics teacher and lecturer who also worked as an education officer in Kenya for 14 years.

He has specially written for primary schools, secondary schools and colleges not only in the UK but all around the world, as well as campaigning to promote awareness of the role the subject plays in combatting Alzheimer's disease and memory loss.

"Mathematics books can be a joy to both students and teachers alike," Gareth says. "Using colourful illustrations, clearly drawn diagrams, numerous examples with plenty of exercises along with enjoyable practical activities relating the subject to students' day to day experiences can make learning the subject a lot easier to understand and use."

"These are the vital aspects I have included. Mathematics being such an important subject in all our lives should be an enjoyable subject to learn."

Gareth also explains how maths has a part to play in the fight against Alzheimer's disease and memory loss.

He recently gave a talk on the value of mental and physical exercises in slowing down the onset of Alzheimer's disease and memory loss at Parkfield Medical Centre in Potters Bar.

He has also created the website [battledementia.co.uk](http://battledementia.co.uk) which he says is his "personal crusade to champion the Alzheimer's cause".

The main aims of the site are to "suggest an appropriate approach to the use of activities that could be attempted whilst caring for people suffering from dementia in an effort to improve their quality of life" and to "offer some valuable and much needed



Gareth Rowlands and below a selection of his books on display

support to those who care for people suffering from dementia day-in, day-out and at night in their own homes as husbands or wives, as family members or as the dedicated, hard-working carers in residential and nursing care homes".

Gareth adds: "It is aimed at supporting hard working carers and to create more and more awareness of Alzheimer's disease and dementia here in the UK and internationally."

"I have already donated my activity resources to Alzheimer's organisations and residential care homes in the UK, Canada, Mauritius, Cyprus and Pakistan having been interviewed on BBC Three Counties Radio, Mauritius TV and Cyprus radio."

"Most recently, I arranged the delivery of my activity booklets to the Kenya Alzheimer's Society. I am pleased that my web site continues to gain interest internationally."





# Teacher shares ways to slow memory loss



**Gareth Rowlands runs neurobic exercise workshops to help people with memory loss**

**By Daisy Smith**

A MATHEMATICIAN has shared some of the brain exercises he uses to help people with dementia.

Gareth Rowlands, from St Albans, runs memory workshops at dementia cafés and care homes in Hertfordshire.

He became passionate about helping those with memory loss after he visited a care home which his wife ran in Barnet.

The retired teacher decided to spend his spare time organising an activity programme for the residents at the care home and began teaching them neurobic exercises he had learned throughout his career.

These include using your dominant and then non-dominant hand to write words and draw diagrams, making simple changes to your routine such as using your non-dominant hand to brush your teeth or to open doors and drawing a picture while listening to music.

Mr Rowlands said: "Combining two or more senses sends a message to the brain and stimu-

lates it as it realises the challenge of the different routine."

He has created a list of 100 neurobic exercises and hopes they will eventually be used by people across the country.

Mr Rowlands said: "There has been ongoing research at Kings College in London that says attempting these exercises and training your brain for short periods of time can have many benefits.

"This includes less stress and positive moods. If you do exercises daily for 10 to 15 minutes for about a month you can notice a change in your memory. You need to think of your brain as a muscle which needs exercise."

The former teacher explained how he came to start his memory workshops. He said: "It was sad seeing residents at the care home doing nothing at all. The care home invited me to organise an activity programme and they reaped considerable benefits.

"I now organise workshops at various venues including dementia cafés and doctors' surgeries to help people who are suffering from memory loss.

"There is a lot to do in terms of helping people, but my mission really is to persevere and leave no stone unturned to help people in the prevention of memory loss."

He added: "When I was doing a neurobic session recently at a dementia café at Welwyn Garden City I asked people if they found any benefits from the exercises.

"They said there was a slight improvement in the memory, were less stressed, they had positive moods, increased motivation and faster thinking."

The former teacher passes on his exercises to others in the community as he believes in their benefits not just for people suffering with memory loss but also for everyday memory.

He said: "One of my big ambitions is to get this to snowball to not only spread throughout Hertfordshire and make an impression on the county but to make a national impact.

"People can use my ideas to benefit the people who are suffering from memory loss and hopefully be used to catch diseases such as Alzheimer's early."



## Introduction to this resource

In this resource on the applications of Neurobic exercises in art and design, you will be using your non dominant hand along with various drawing instruments to create your own attractive designs by colouring in spaces created when geometrical shapes overlap each other.

The geometrical shapes you will draw are commonly seen in the world around us especially when you look at the architecture of some of our buildings and homes or even the type of packaging used for the various items we buy at shops and supermarkets.

Before you start looking at the various design examples created using two or more overlapping mathematical shapes, it would be very helpful for you if you could spare some time to look at the 'guide to Neurobic exercises' that I have compiled as this would then help you when attempting the exercises in this resource.

When you have completed some of your designs you may wish to place two or more of them together to create a framed design which you can then display. An example is shown in the Examples section.

By visiting the author's website [www.battledementia.co.uk](http://www.battledementia.co.uk) you will be able to find more resources on the uses of Neurobic exercises to combat memory loss. These resources can be downloaded free of charge.

Neurobic exercises are designed to stimulate the brain and improve memory retention. The exercises support the growth of new brain cells (neurons) and in turn promote the nerve cells 'to send messages to each other'.

An active brain is a healthy brain and our brains enjoy tackling challenging exercises.

According to ongoing research, Neurobic exercises help delay memory loss and keep the mind working 'better for longer'.

By creating the colourful non dominant hand mathematical designs you are challenging your brain by using your non dominant hand to draw and colour and at the same time you are rewarded with a beautiful design you have enjoyed creating.



## Materials required

### Note:

You will no doubt find that a geometric shapes stencil would most helpful in the drawing of the mathematical shapes especially the circles and the ellipses. These stencils can be obtained from most stationery outlets and on line from Amazon and other stationery providers.

When selecting a stencil it is useful to obtain a sturdy one as flimsy stencils tend to move around when drawing.

For drawing circles you may also use circular objects to draw round or a geometric compass with a sharp pencil. Some people may also wish to use tracing paper to copy and make drawings.

### Other materials:

A4 white paper  
pens and pencils (HB)  
Frames for display of designs

# Hello!



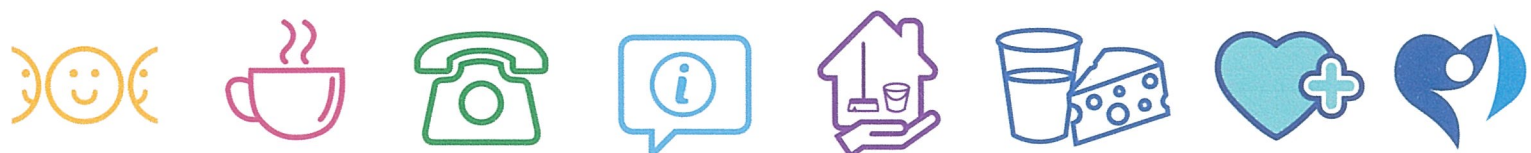
*Welcome to your neurobic exercise guide!*

*All you need is a pen and paper and you are on your way!*

The contents of this guide on neurobic exercises have been provided by Gareth Rowlands, a campaigner for people living with memory loss. A resource booklet '*Our Brain Matters*' can be found on the opening page of his web site [www.battledementia.co.uk](http://www.battledementia.co.uk). If you would like to practice more similar exercises to this guide, please visit his website.

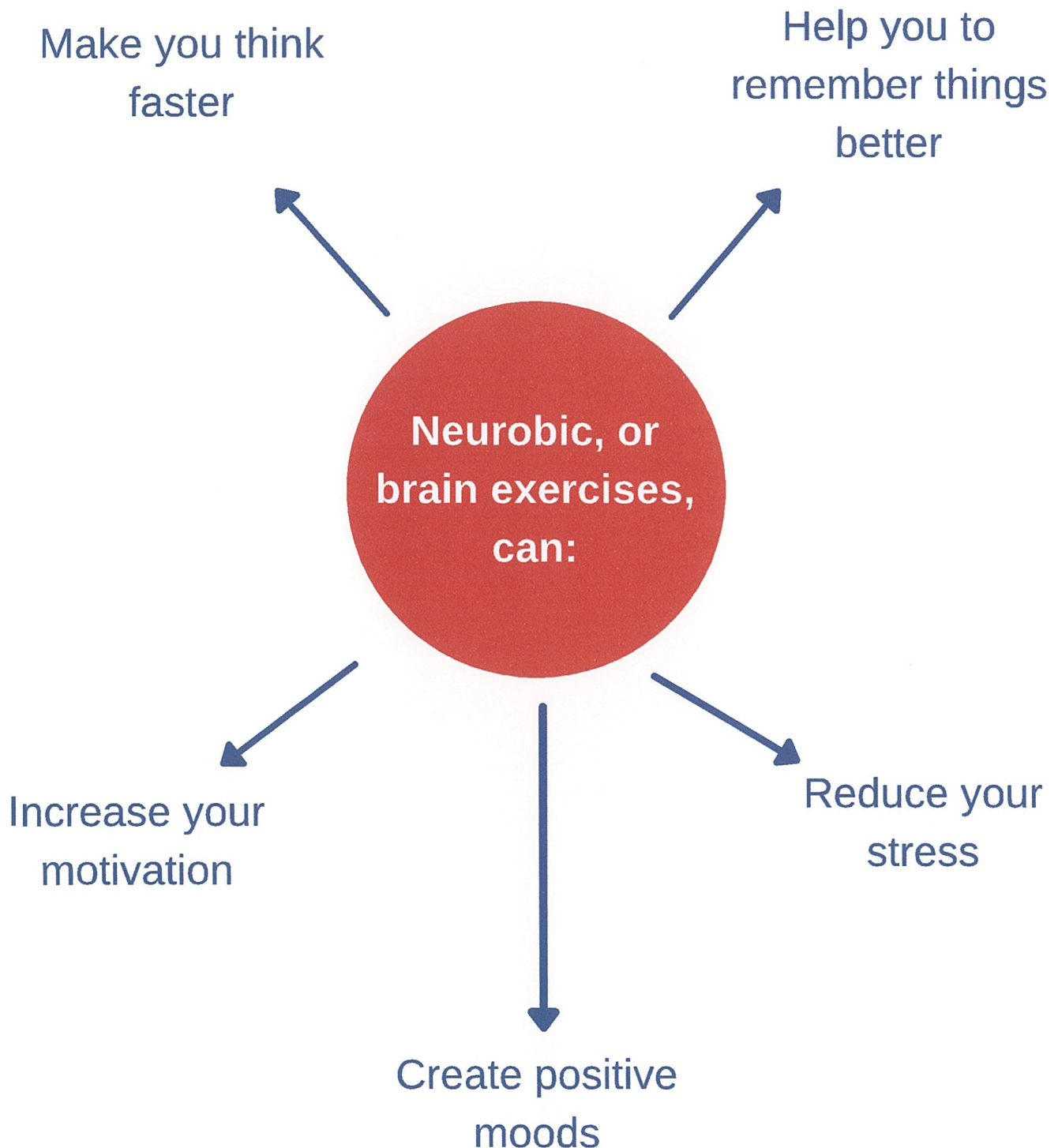
His resource '*Our Brain Matters*' is made up of a variety of different neurobic exercises, divided into chapters. Most of the exercises are graded starting with easy exercises leading on to more difficult ones.

It is suggested that carers using his resource at home, in residential care and nursing homes and elsewhere will be able to select exercises for their residents to suit their circumstances at the time. The exercise can be attempted by themselves, in pairs or in groups as a family.





# Benefits of neurobic exercises



**NOTE:**

*For best results, neurobic exercises should be attempted for 10-15 minutes daily.*

# Writing exercises

## Guide on how to do these exercises

*If you're right handed:*

**L** = Unusual hand



**R** = Usual hand



*If you're left handed:*

**L** = Usual hand



**R** = Unusual hand





# Writing Exercises

*You can make up your own exercises like the below using different names, letters, shapes and numbers.*

## **Exercise 1:**

- Write down your first name with your usual hand.
- Write down your name with your unusual hand.
- Write down your name backwards with your usual hand.
- Write down your name backwards with your unusual hand.

## **Exercise 2:**

- Make a rough sketch of this letter with your usual hand.
- Make a rough sketch of the letter with your unusual hand.



## **Exercise 3:**

- Write down this number with your usual hand.
- Write down the number with your unusual hand.
- Write down the number backwards with your usual hand.
- Write down the number backwards with your unusual hand.

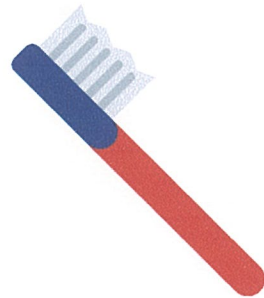


# Day-to-day exercises

**Just as too much sitting is bad for the body, too much day-in, day-out routine is bad for the brain. The brain needs to be stimulated constantly.**

***Try these routine tasks using your non dominant hand and bring your brain alive:***

- Brushing your teeth
- Opening the toothpaste tube
- Combing or brushing your hair
- Using a spoon at breakfast time
- Dialing a number
- Using the computer mouse
- Typing on your computer keyboard



***With your eyes closed try using your unusual hand to:***

- Dressing and buttoning or zipping up
- Washing your face
- Carefully opening and shutting doors and containers;

***To tax your brain:***

- Turn your calendar upside down
- Wear your watch upside down on your unusual wrist
- Read a newspaper etc when it is upside down
- Turn family photos upside down and display in another room



# Day-to-day exercises

***When you are really energetic, use your non dominant hand to:***

- Throw a ball into a basket or bucket. Repeat 10 times
- Throw a ball up and catch it. Repeat 10 times.
- Bounce a ball five to ten times.
- Roll a ball into the corner of the room. Repeat 10 times.



***Exercises involving tasks using two or more of the five senses (sight, hearing, smell, taste and touch):***

- Dancing to recorded or live music - turn up that radio!
- Singing whilst drawing or painting a picture
- Singing whilst doing a task such as housework or gardening
- Watching the clouds go by whilst creating a shape with modelling clay
- Drawing a picture, singing in a room with a lovely smell of lavender





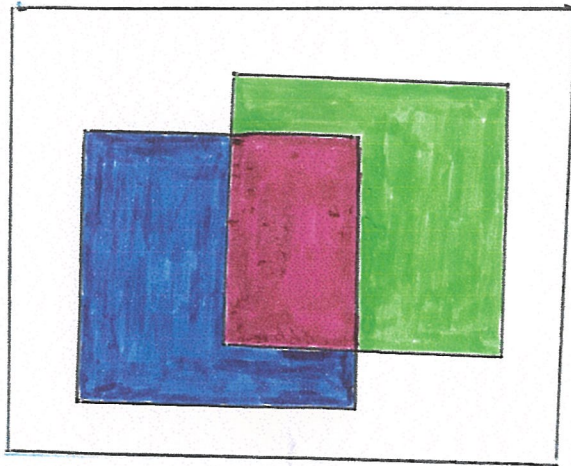
## Examples of non dominant hand designs

The next **eleven** pages illustrate **seventeen** examples of non dominant hand designs created from **two or more** overlapping geometrical shapes.

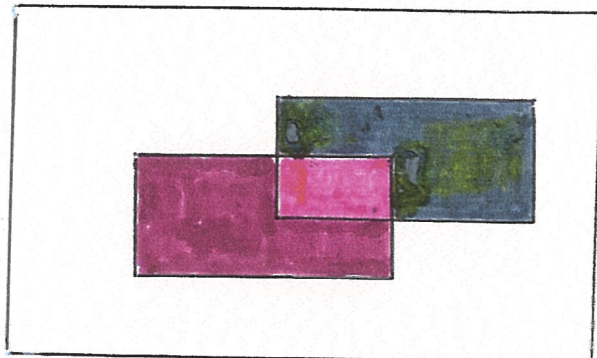
Example 17 illustrates four designs placed together which can be used to make a framed design for display. If desired, two of the four designs could also be used for a framed display. (three or even one design could also be considered!)

You may also wish to consider enlarging some of the designs from A4 size to A3 size.

Example 1.

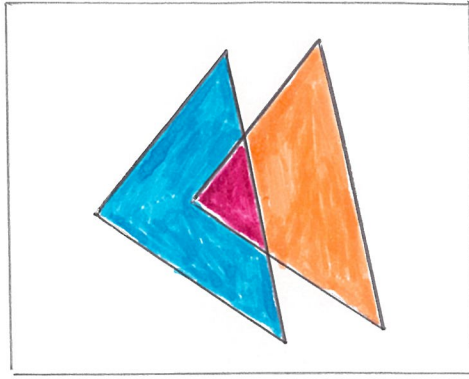


Example 2





Example 3

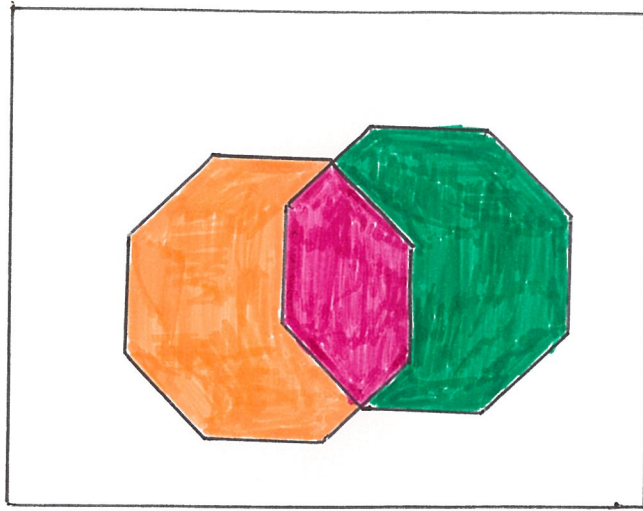


Example 4





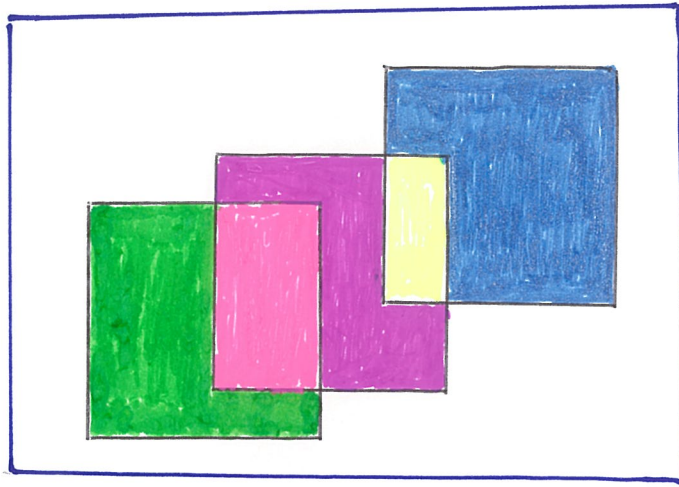
Example 5



Example 6

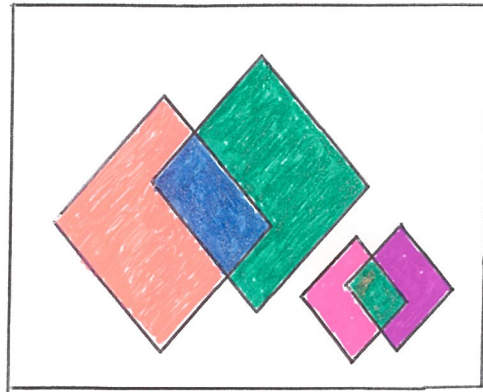


Example 7

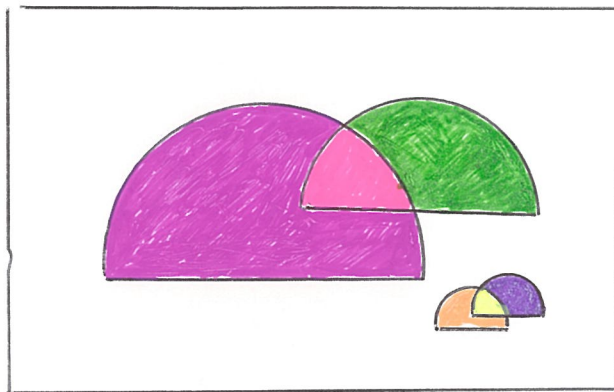




Example 8



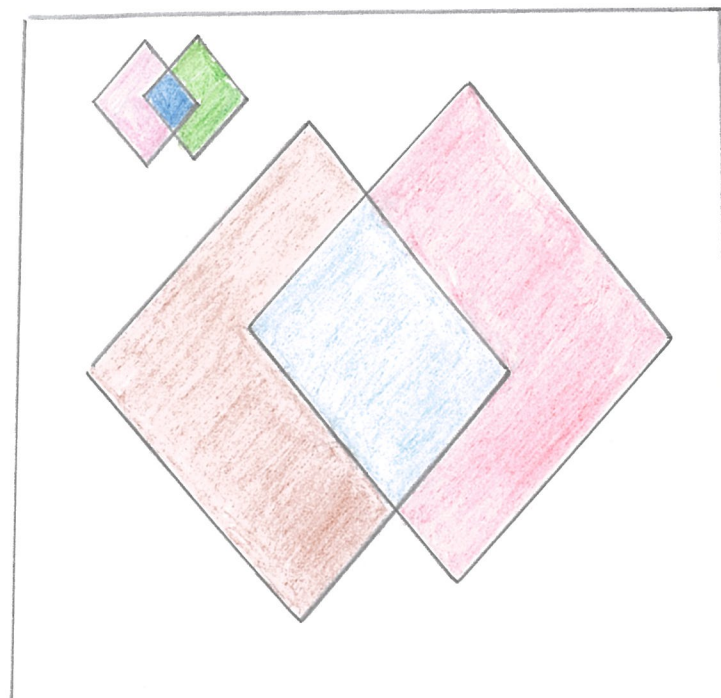
Example 9



Example 10

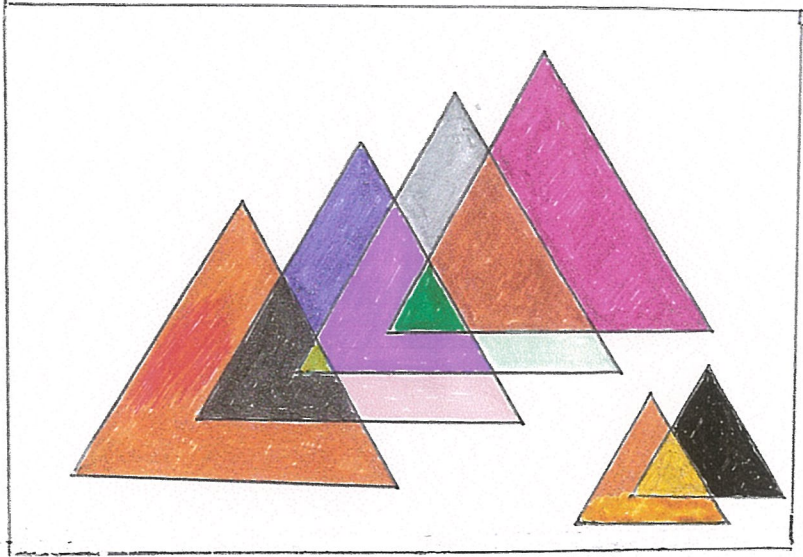


Example 11

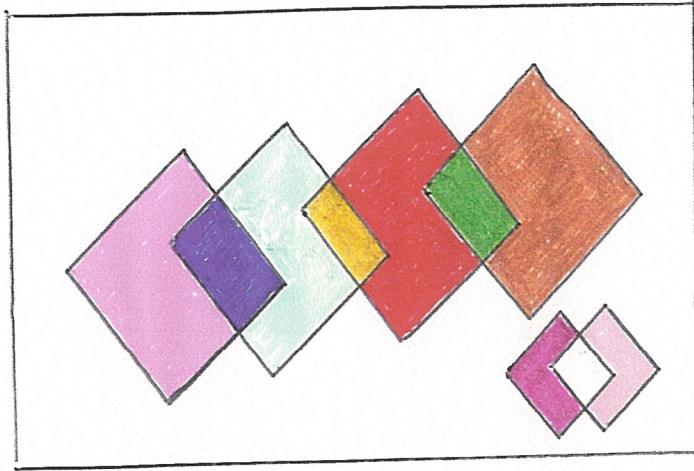




## Example 12

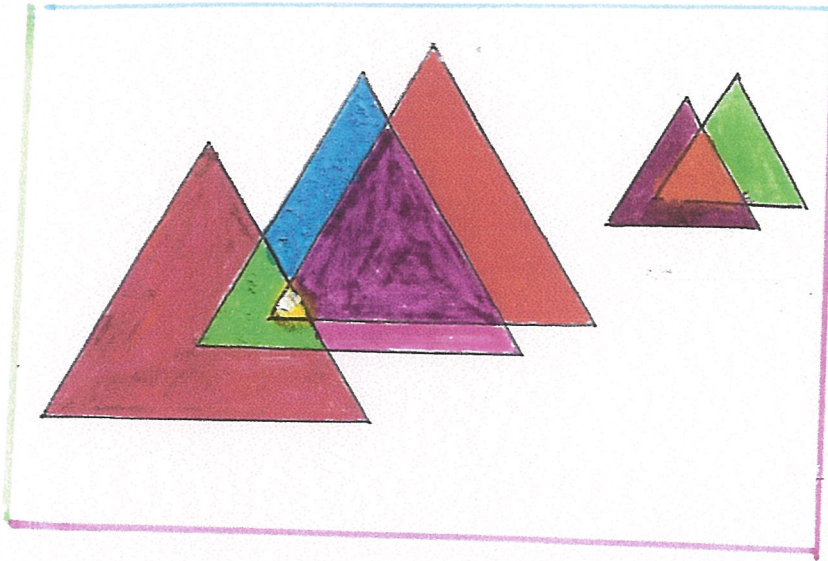


### Example 13

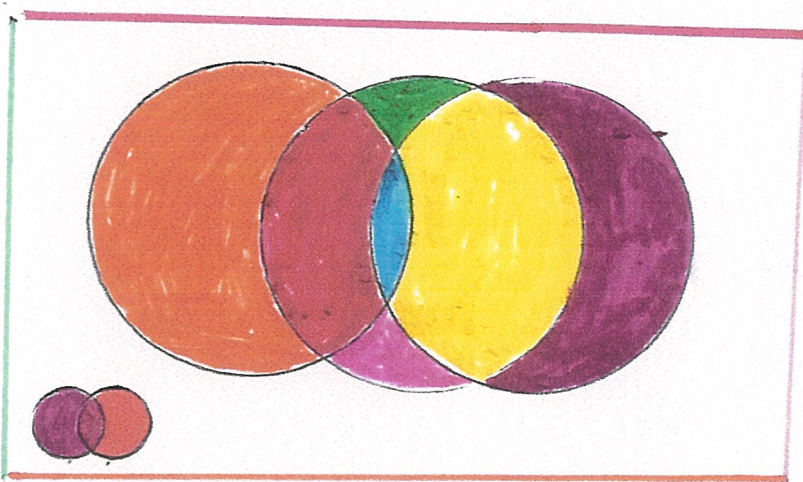




Example 14

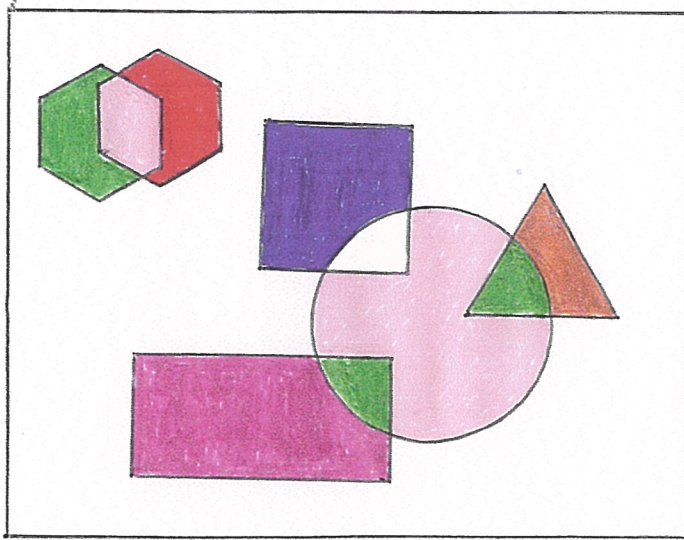


Example 15

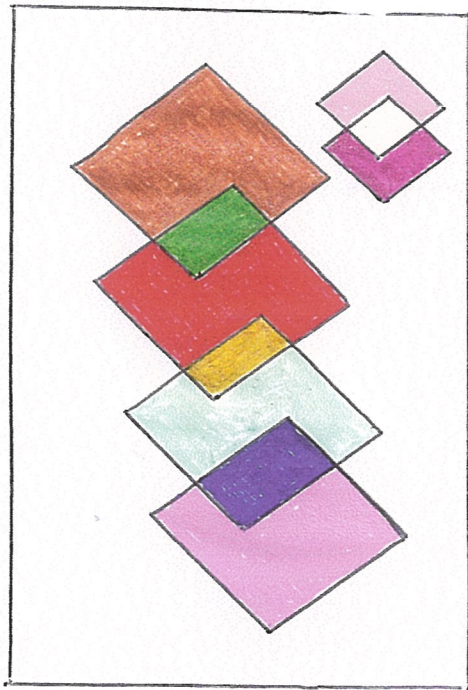
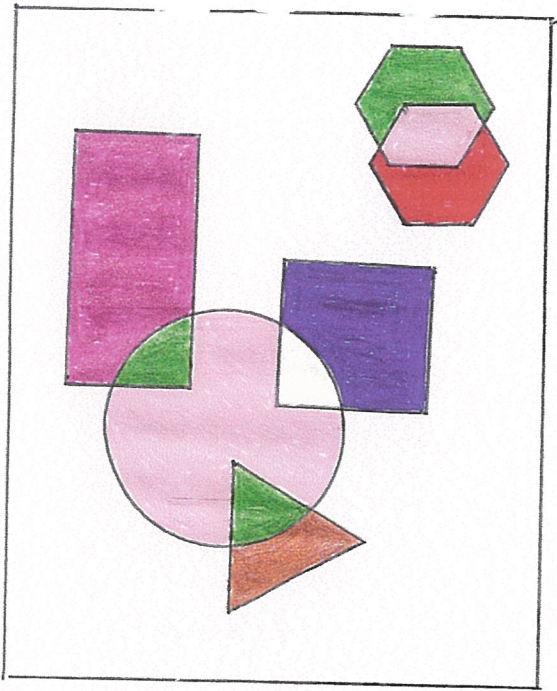
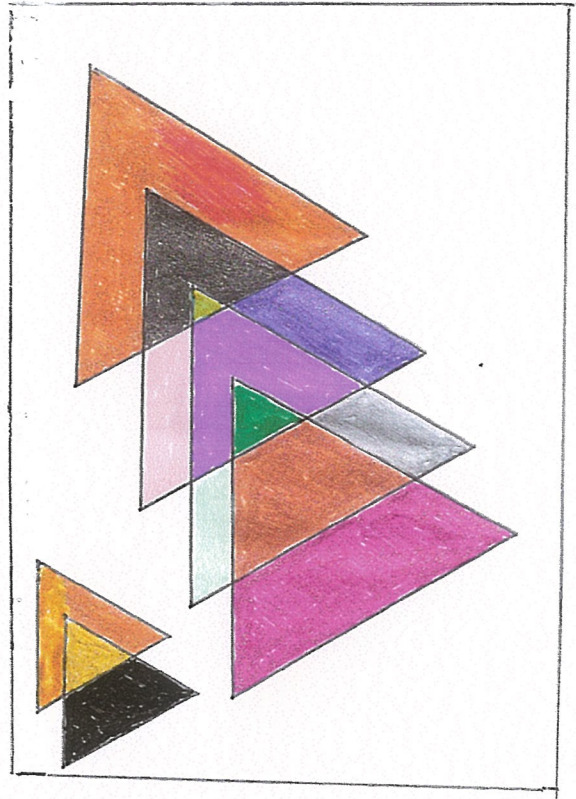


Example 16

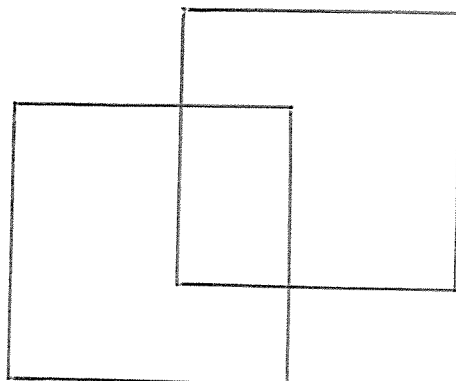
16







## Exercise 1



The diagram shows two overlapping squares.

On white paper, use your non dominant hand, a ruler and pencil or pen, to make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring device by shading in the three areas in the diagram in different colours.

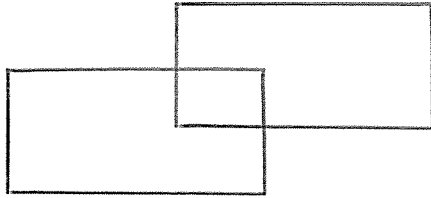
Well done! You have now completed your first non dominant hand coloured design using overlapping mathematical shapes.

Keep all your designs together safely so that you can later combine some of them to form beautiful art works like the ones illustrated earlier in this resource.

You may later wish to frame your designs and display them in a prominent place.



## Exercise 2

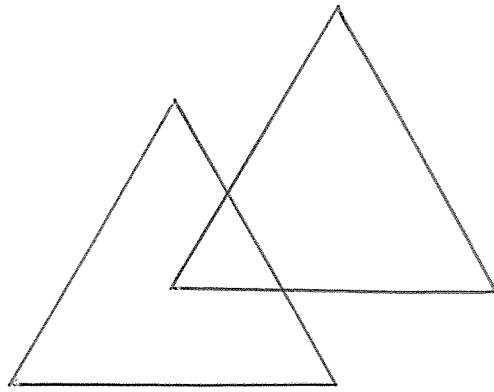


The diagram shows two overlapping rectangles.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the three areas in the diagram in three different colours.

### Exercise 3



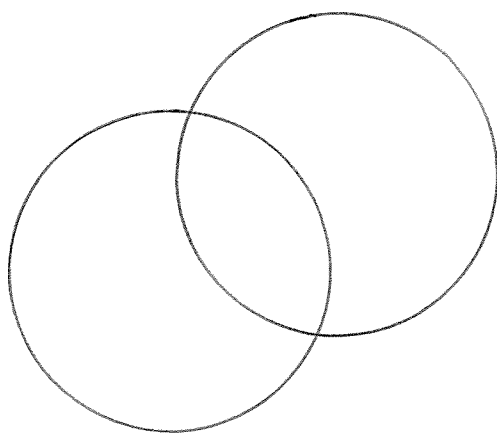
The diagram shows two overlapping triangles.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the three areas in the diagram in three different colours.



#### Exercise 4

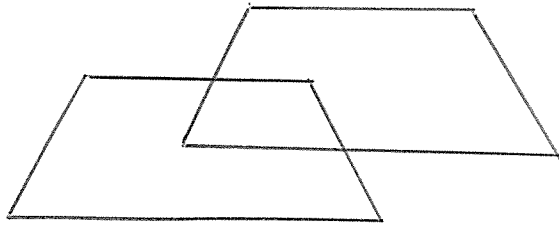


The diagram shows two overlapping circles.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the three areas in the diagram in three different colours.

## Exercise 5



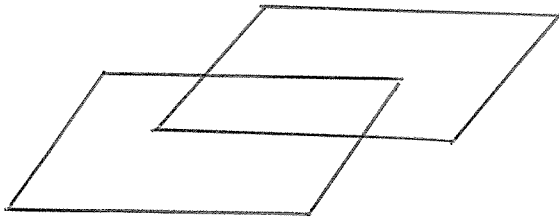
The diagram shows two overlapping trapeziums.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the three areas in the diagram in three different colours.



## Exercise 6

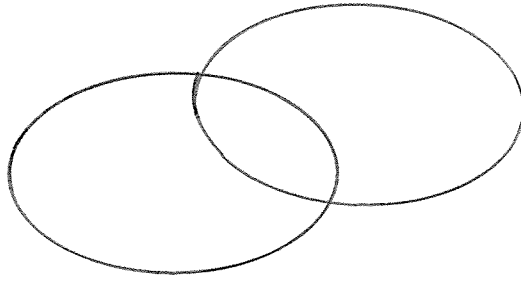


The diagram shows two overlapping parallelograms.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the three areas in the diagram in three different colours.

## Exercise 7



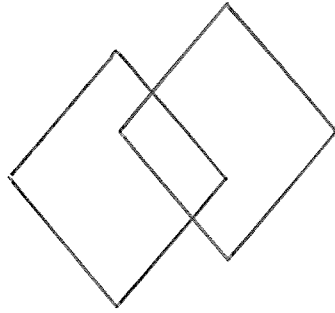
The diagram shows two overlapping ellipses.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the three areas in the diagram in three different colours.



## Exercise 8

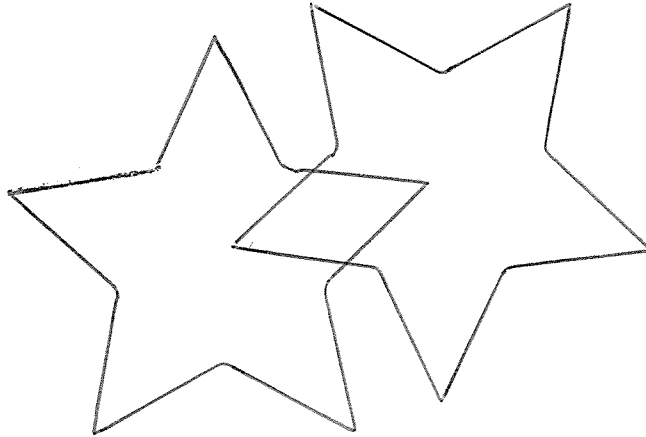


The diagram shows two overlapping diamonds.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the three areas in the diagram in three different colours.

## Exercise 9

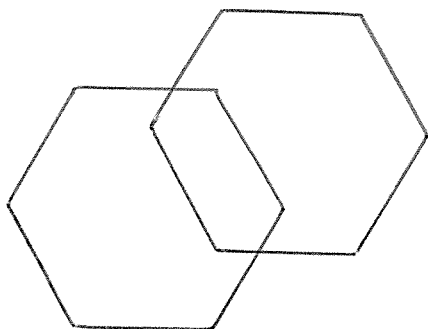


The diagram shows two overlapping stars.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the three areas in the diagram in three different colours.

## Exercise 10



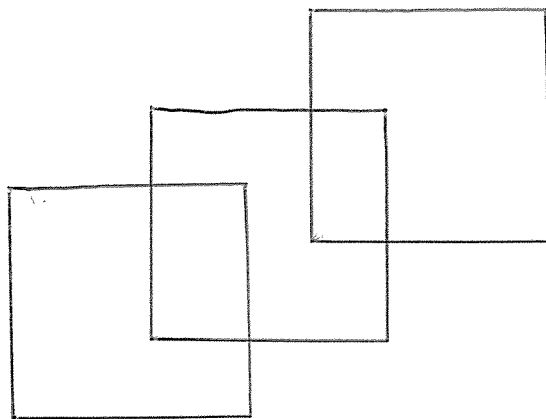
The diagram shows two overlapping hexagons.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the three areas in the diagram in three different colours.



## Exercise 11

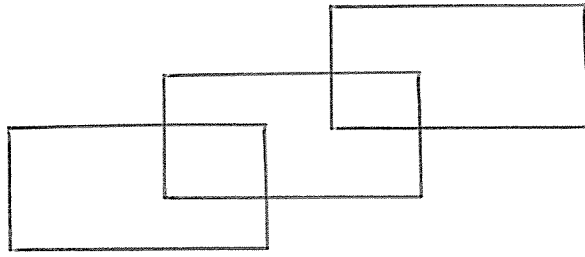


The diagram shows three overlapping squares.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

## Exercise 12

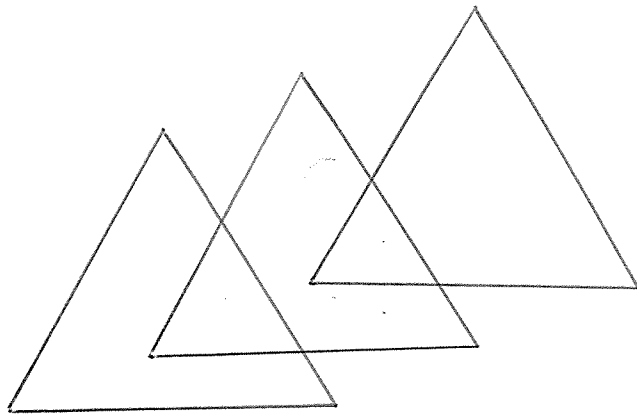


The diagram shows three overlapping rectangles.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

### Exercise 13



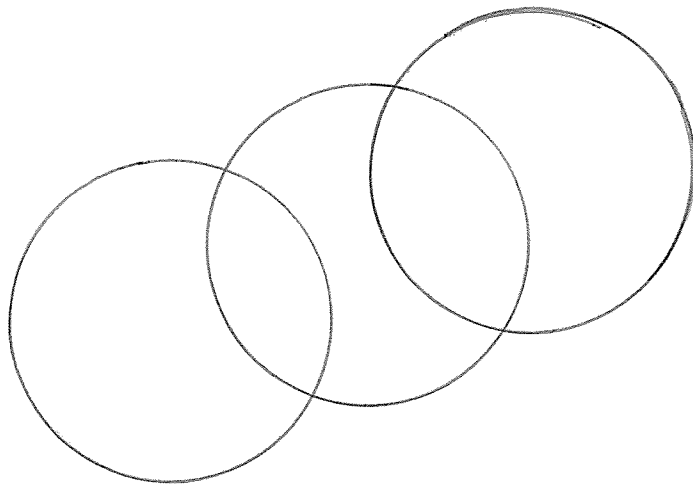
The diagram shows three overlapping triangles.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.



## Exercise 14

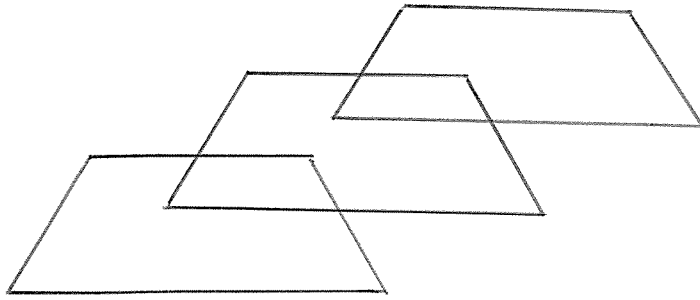


The diagram shows three overlapping circles.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

### Exercise 15

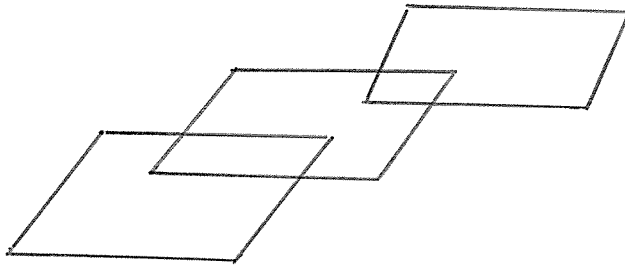


The diagram shows three overlapping trapeziums.

On white paper, use your non dominant hand, a ruler and pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

## Exercise 16



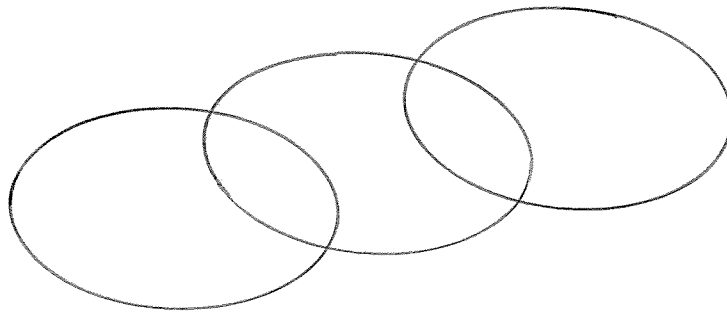
The diagram shows three overlapping parallelograms.

On white paper, use your non dominant hand, a ruler and a pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.



## Exercise 17

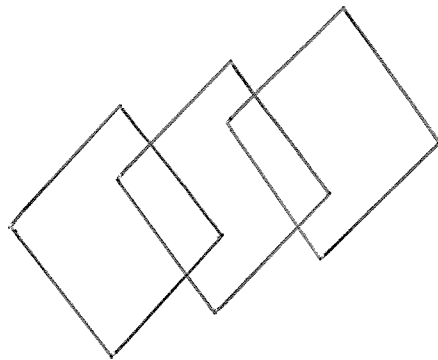


The diagram shows three overlapping ellipses.

On white paper, use your non dominant hand, a ruler and a pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

## Exercise 18



The diagram shows three overlapping diamonds.

On white paper, use your non dominant hand, a ruler and a pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

### Exercise 19

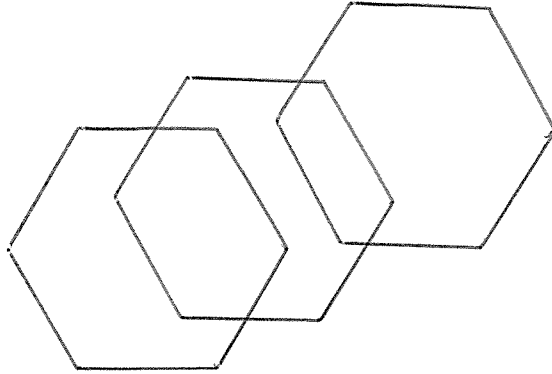


The diagram shows three overlapping stars.

On white paper, use your non dominant hand, a ruler and a pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

## Exercise 20



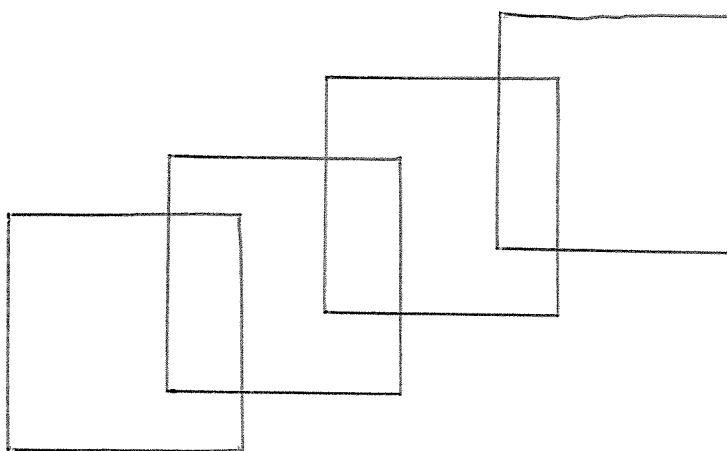
The diagram shows three overlapping hexagons.

On white paper, use your non dominant hand, a ruler and a pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.



## Exercise 21

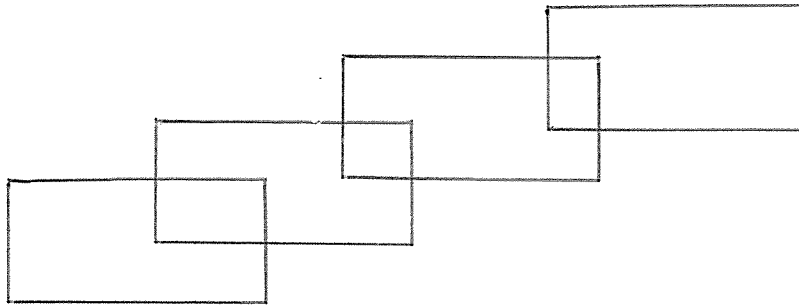


The diagram shows four overlapping squares.

On white paper, use your non dominant hand, a ruler and a pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the seven areas in the diagram in 7 different colours.

## Exercise 22

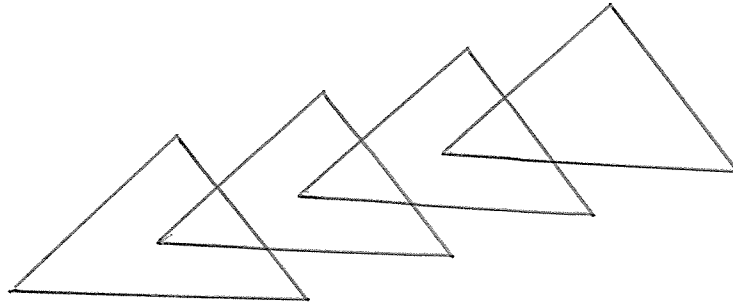


The diagram shows four overlapping rectangles.

On white paper, use your non dominant hand, a ruler and a pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the seven areas in the diagram in 7 different colours.

## Exercise 23

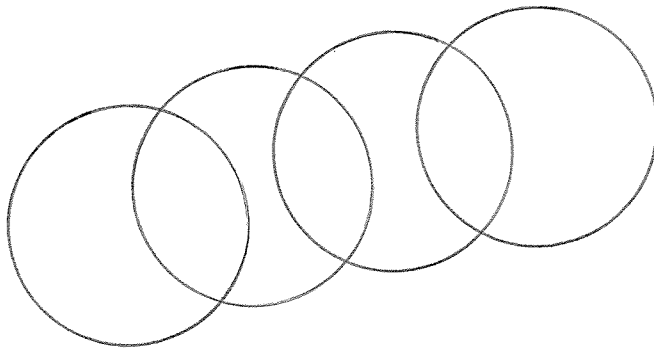


The diagram shows four overlapping triangles.

On white paper, use your non dominant hand, a ruler and a pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the seven areas in the diagram in 7 different colours.

## Exercise 24



The diagram shows four overlapping circles.

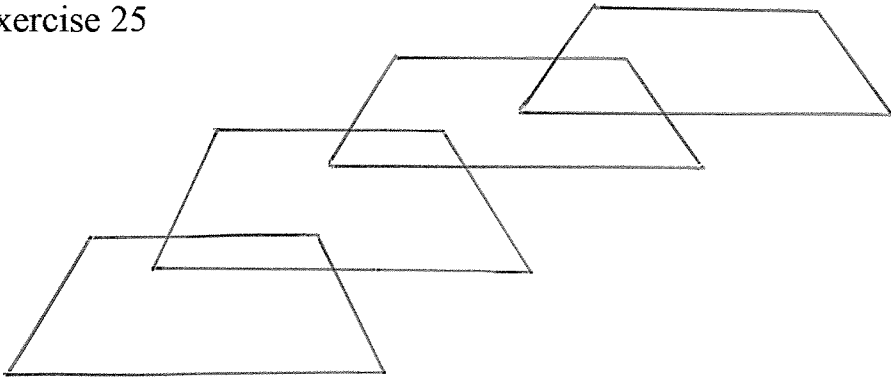
On white paper, use a circular object like a circular lid to make a sketch of the four circles. Or you can use a compass or a stencil with a pencil or pen to draw the circles.

Use your non dominant hand to make the sketch.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the seven areas in the diagram in 7 different colours.



### Exercise 25

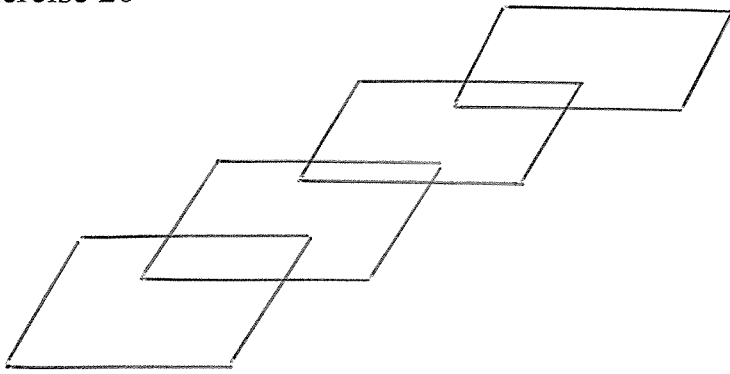


The diagram shows four overlapping trapeziums.

On white paper, use your non dominant hand, a ruler and a pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the seven areas in the diagram in 7 different colours.

## Exercise 26

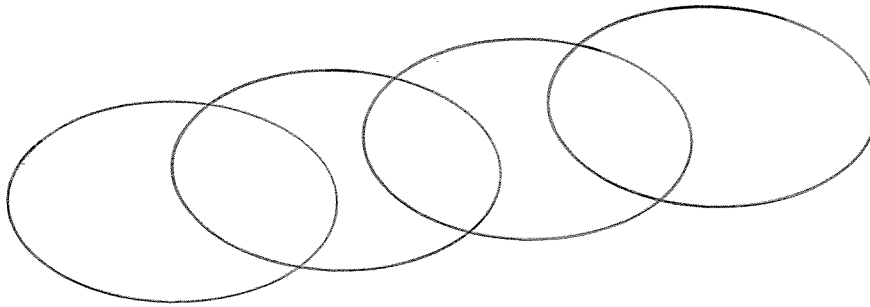


The diagram shows four overlapping parallelograms..

On white paper, use your non dominant hand, a ruler and a pencil or pen to make a similar sketch of the diagram.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the seven areas in the diagram in 7 different colours.

## Exercise 27



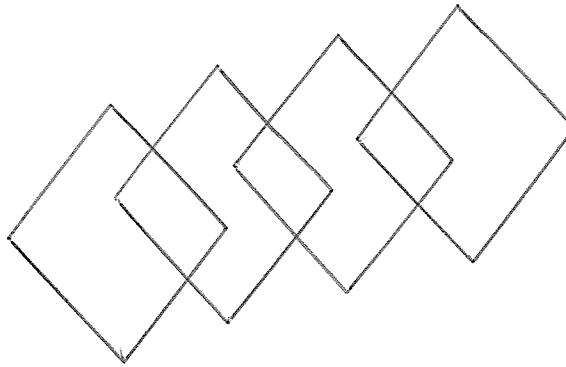
The diagram shows four overlapping ellipses.

On white paper, make a sketch of the four ellipses using tracing paper, a pen or pencil.

Use your non dominant hand to make the sketch.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the seven areas in the diagram in 7 different colours.

## Exercise 28



The diagram shows four overlapping diamond shapes.

On white paper, using your non dominant hand, make a sketch of the four diamond shapes using a ruler, pencil and pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the seven areas in the diagram in 7 different colours.



## Exercise 29

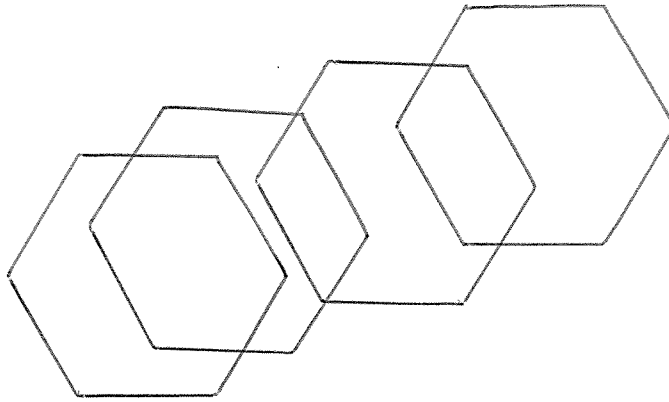


The diagram shows four overlapping stars

On white paper, using your non dominant hand, make a sketch of the four stars using a ruler, pencil and pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the seven areas in the diagram in 7 different colours.

### Exercise 30

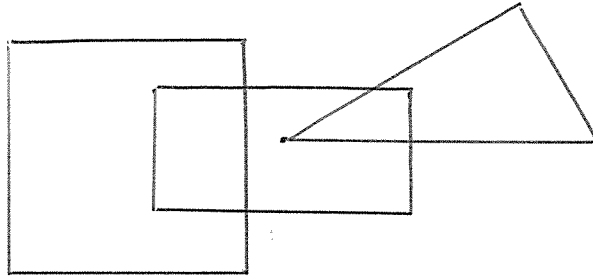


The diagram shows four overlapping hexagons.

On white paper, using your non dominant hand, make a sketch of the four hexagons using a ruler, pencil and pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the seven areas in the diagram in 7 different colours.

### Exercise 31

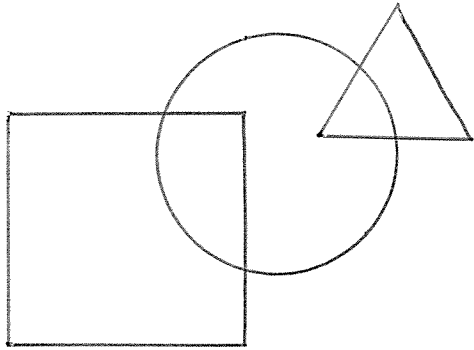


The diagram shows three overlapping shapes.

On white paper, using your non dominant hand, make a sketch of the diagram using a ruler, pencil or pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

## Exercise 32

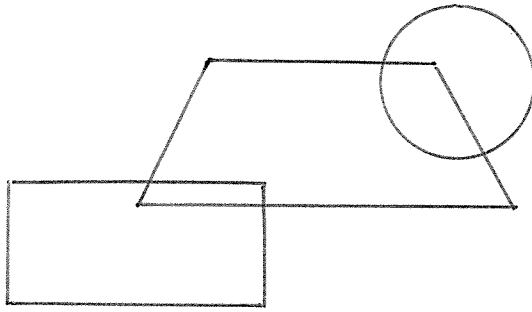


The diagram shows three overlapping shapes.

On white paper, using your non dominant hand, make a sketch of the diagram using a ruler, pencil or pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

### Exercise 33



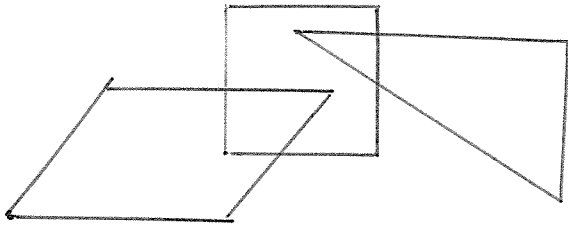
The diagram shows three overlapping shapes.

On white paper, using your non dominant hand, make a sketch of the diagram using a ruler, pencil or pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.



### Exercise 34

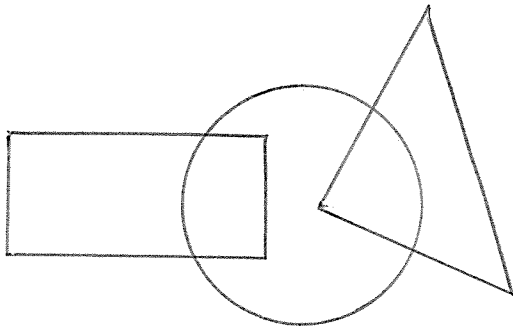


The diagram shows three overlapping shapes.

On white paper, using your non dominant hand, make a sketch of the diagram using a ruler, pencil or pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

### Exercise 35

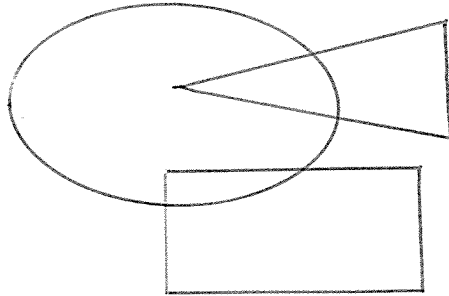


The diagram shows three overlapping shapes.

On white paper, using your non dominant hand, make a sketch of the diagram using a ruler, pencil or pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

### Exercise 36

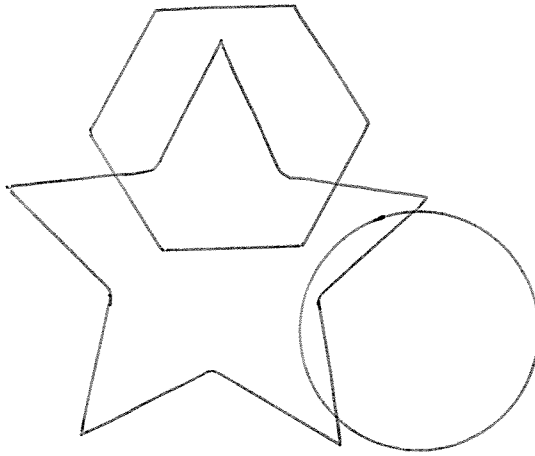


The diagram shows three overlapping shapes.

On white paper, using your non dominant hand, make a sketch of the diagram using a ruler, pencil or pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

### Exercise 37

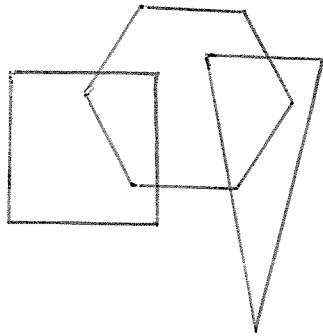


The diagram shows three overlapping shapes.

On white paper, using your non dominant hand, make a sketch of the diagram using a ruler, pencil or pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

### Exercise 38



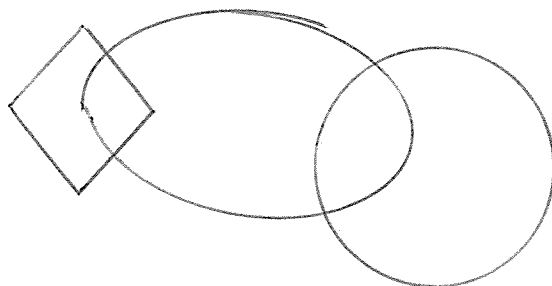
The diagram shows three overlapping shapes.

On white paper, using your non dominant hand, make a sketch of the diagram using a ruler, pencil or pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.



### Exercise 39

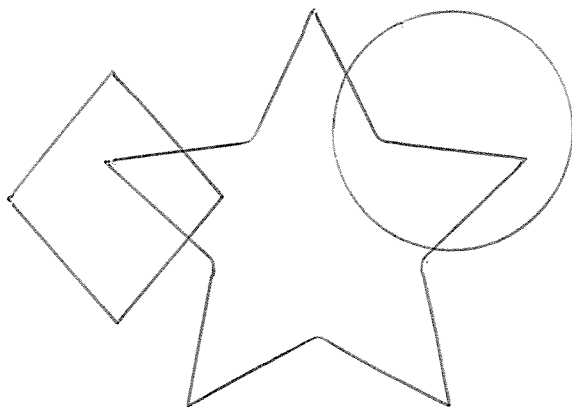


The diagram shows three overlapping shapes.

On white paper, using your non dominant hand, make a sketch of the diagram using a ruler, pencil or pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

## Exercise 40

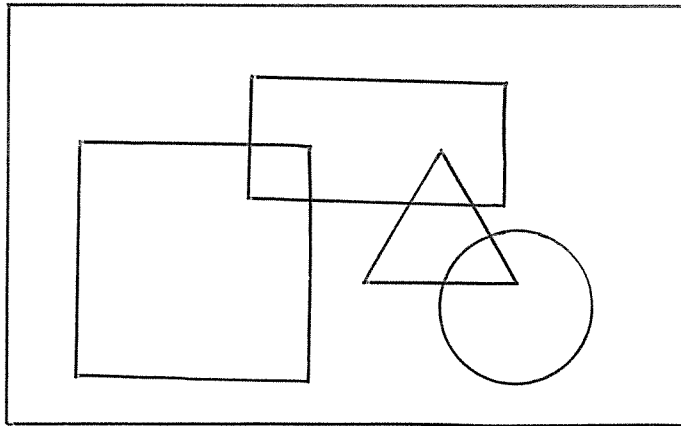


The diagram shows three overlapping shapes.

On white paper, using your non dominant hand, make a sketch of the diagram using a ruler, pencil or pen.

Using your non dominant hand again, complete your design using coloured pencils, felt pens or any other colouring method you wish to use, by shading in the five areas in the diagram in five different colours.

## Exercise 41



The diagram shows four different and overlapping shapes.

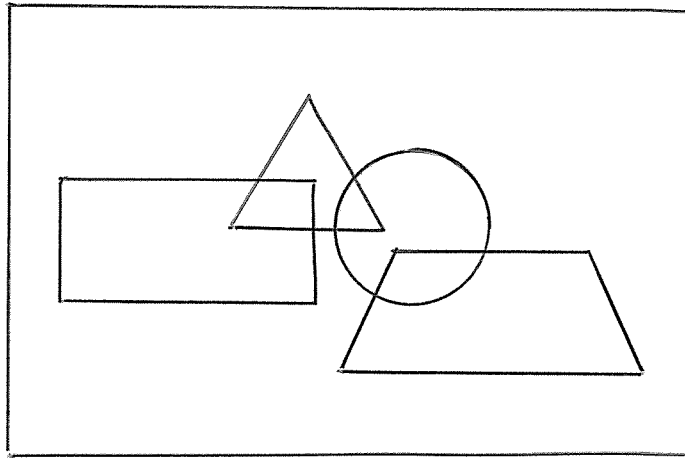
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the four overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 42



The diagram shows four different and overlapping shapes.

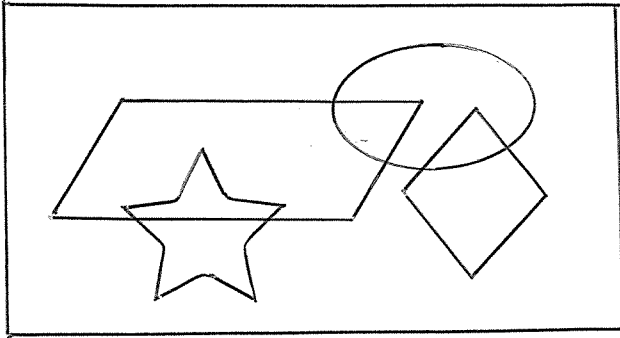
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the four overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

### Exercise 43



The diagram shows four different and overlapping shapes.

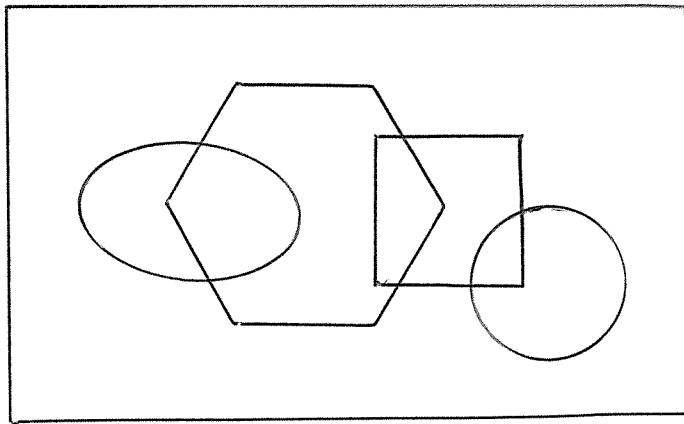
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the four overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 44



The diagram shows four different and overlapping shapes.

On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

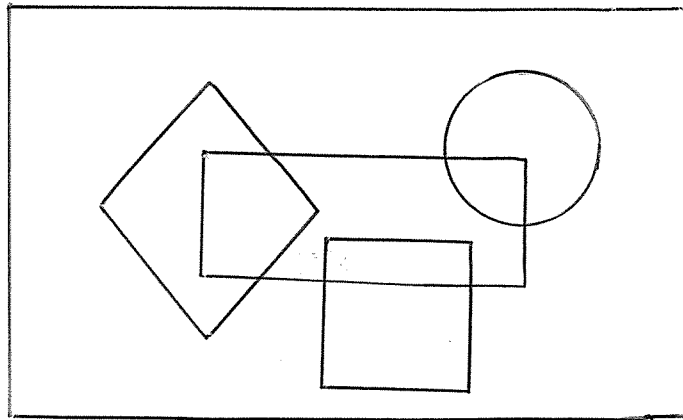
Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the four overlapping shapes in your design.

Draw a border round the design as shown in the diagram.



## Exercise 45



The diagram shows four different and overlapping shapes.

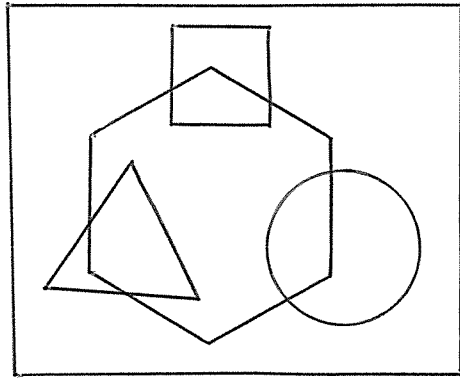
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the four overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 46



The diagram shows four different and overlapping shapes.

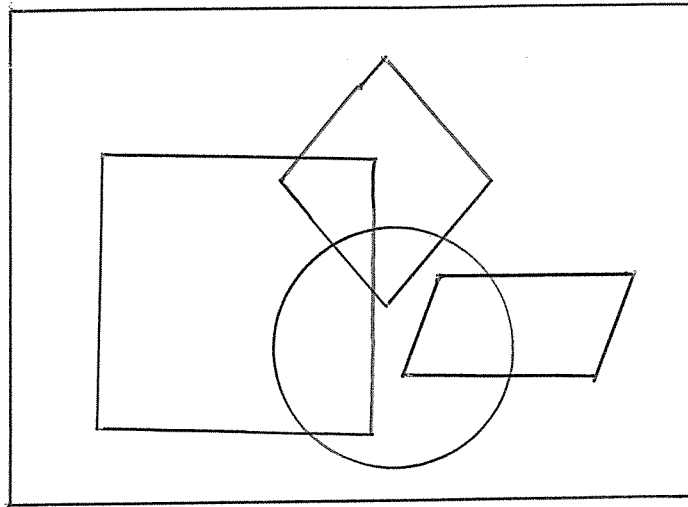
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the four overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

### Exercise 47



The diagram shows four different and overlapping shapes.

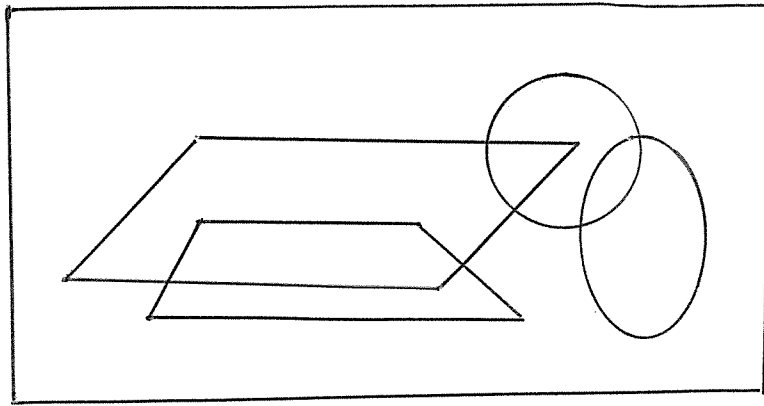
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the four overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 48



The diagram shows four different and overlapping shapes.

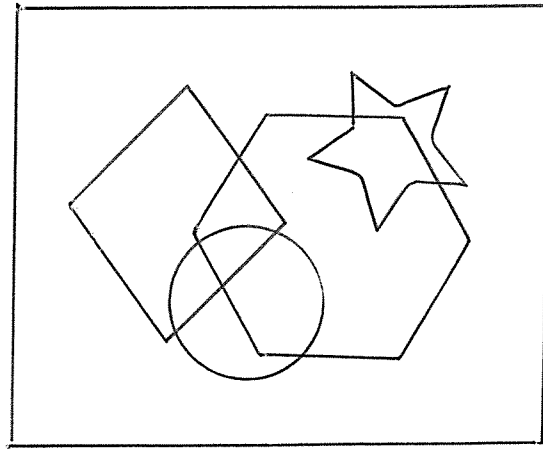
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the four overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 49



The diagram shows four different and overlapping shapes.

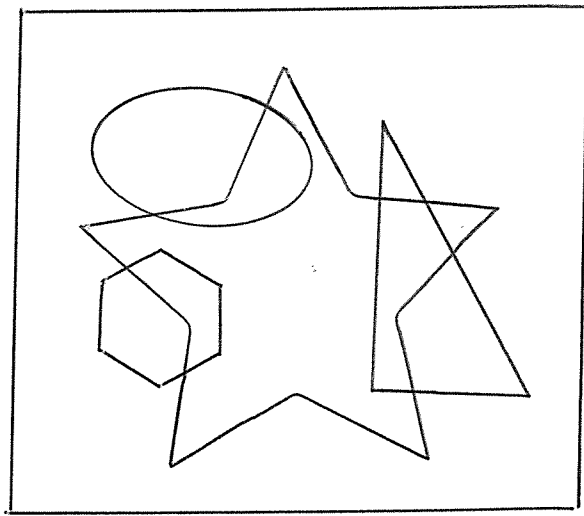
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the four overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 50



The diagram shows four different and overlapping shapes.

On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

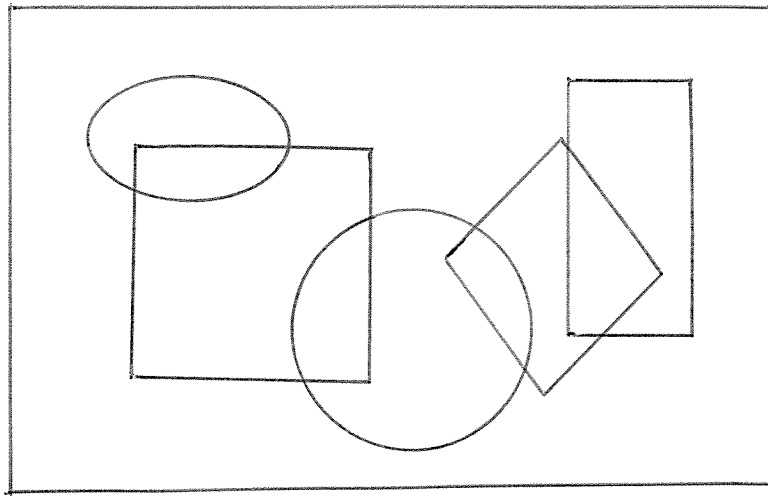
Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the four overlapping shapes in your design.

Draw a border round the design as shown in the diagram.



## Exercise 51



The diagram shows five different and overlapping shapes.

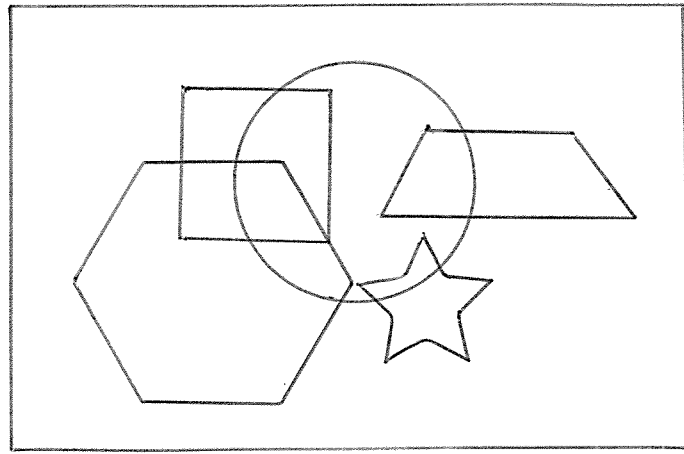
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the five overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 52



The diagram shows five different and overlapping shapes.

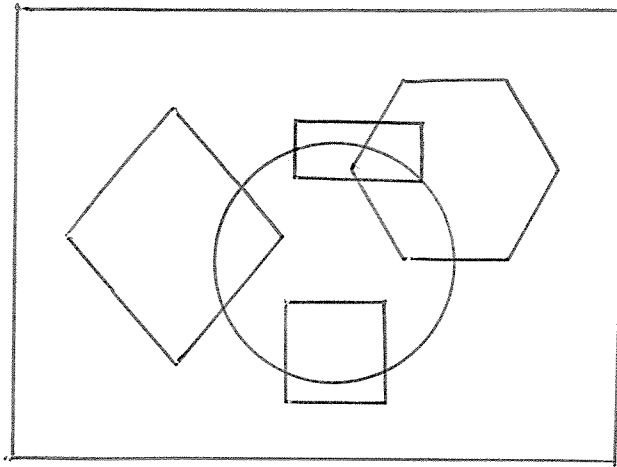
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the five overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

### Exercise 53



The diagram shows five different and overlapping shapes.

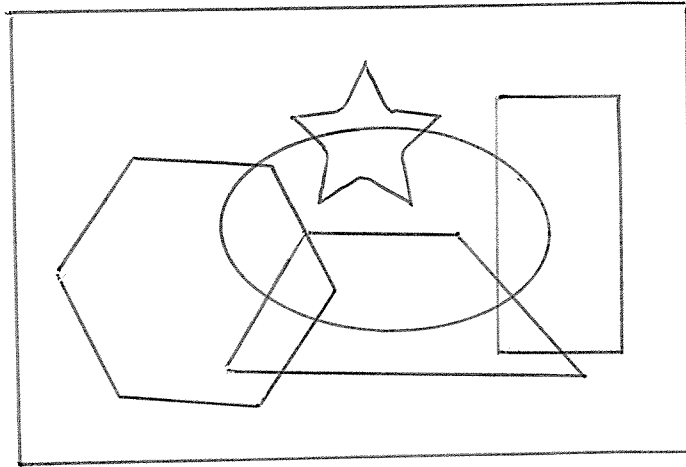
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the five overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 54



The diagram shows five different and overlapping shapes.

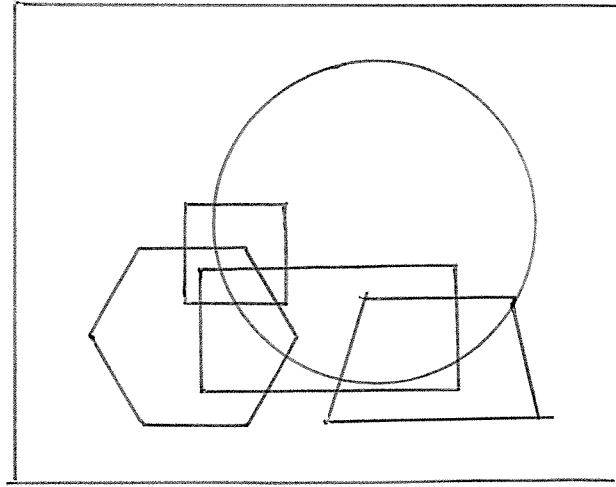
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the five overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

### Exercise 55



The diagram shows five different and overlapping shapes.

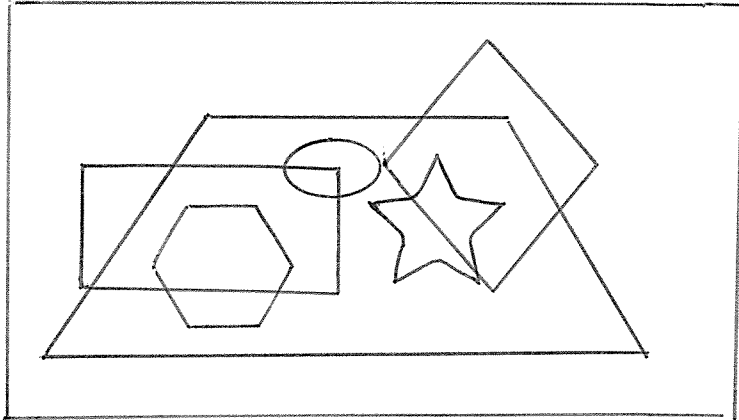
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the five overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

### Exercise 56



The diagram shows five different and overlapping shapes.

On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

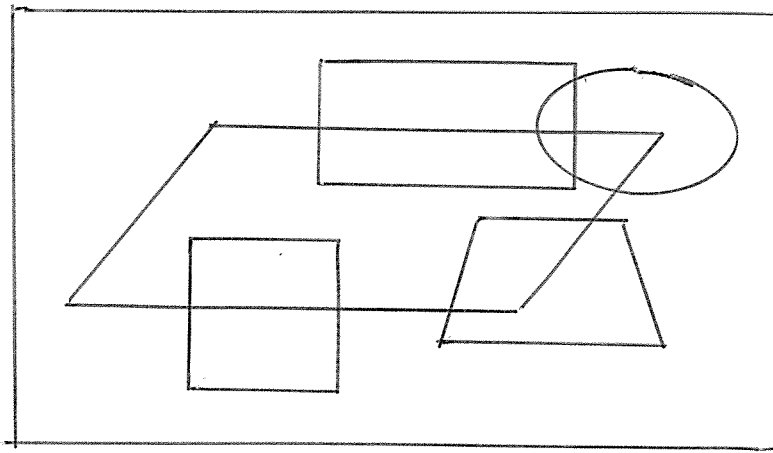
Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the five overlapping shapes in your design.

Draw a border round the design as shown in the diagram.



### Exercise 57



The diagram shows five different and overlapping shapes.

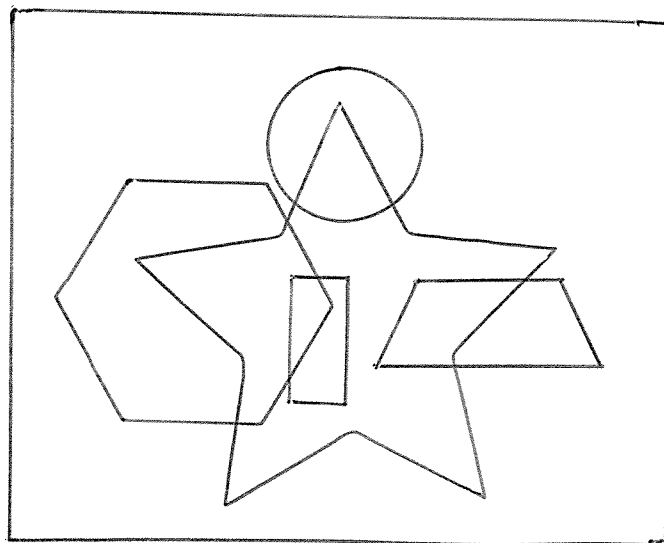
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the five overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 58



The diagram shows five different and overlapping shapes.

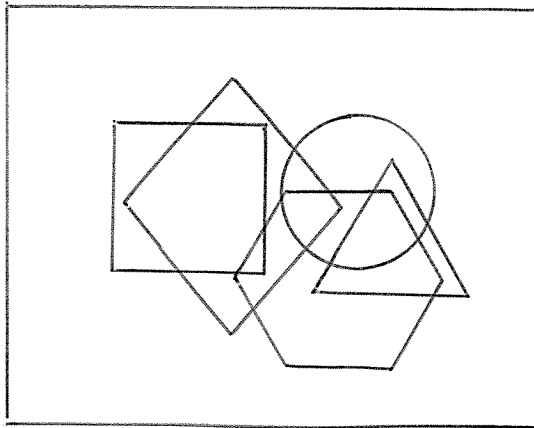
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the five overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 59



The diagram shows five different and overlapping shapes.

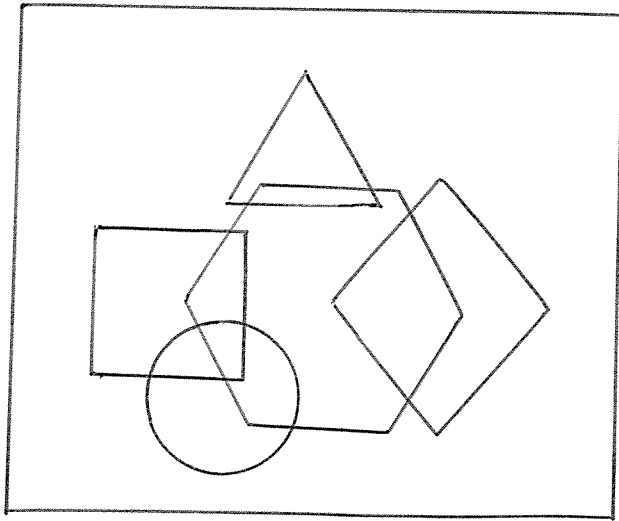
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the five overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 60



The diagram shows five different and overlapping shapes.

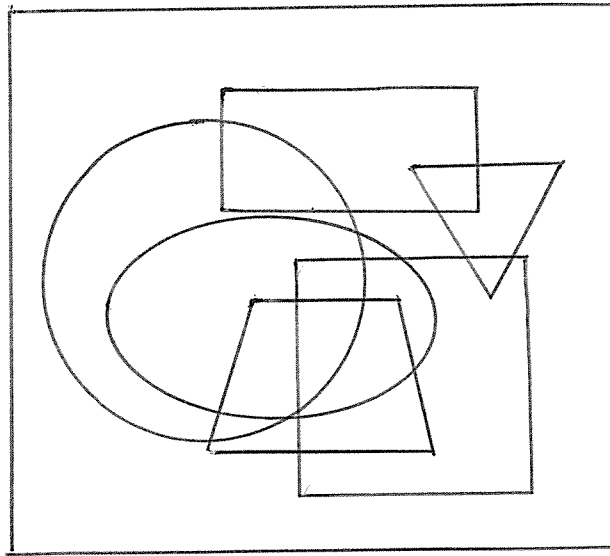
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the five overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 61



The diagram shows six different and overlapping shapes.

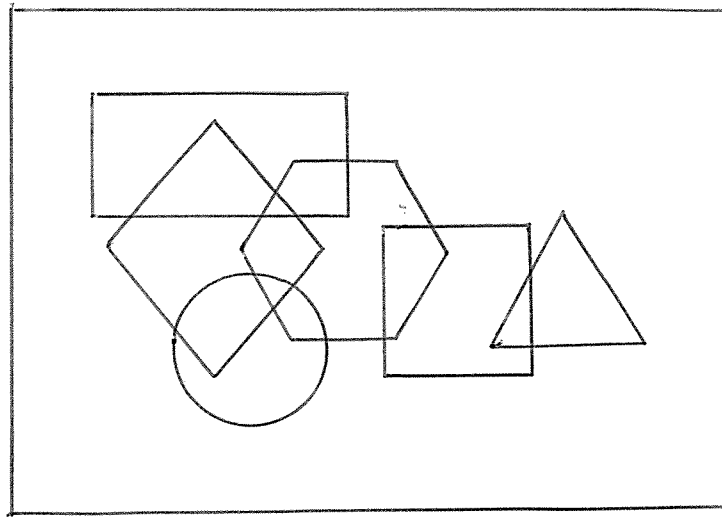
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the six overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 62



The diagram shows six different and overlapping shapes.

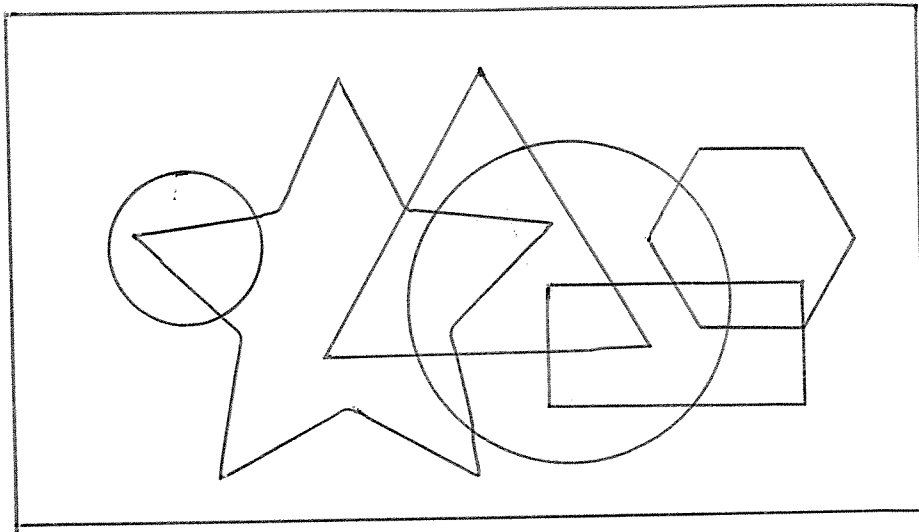
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the six overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

### Exercise 63



The diagram shows six different and overlapping shapes.

On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

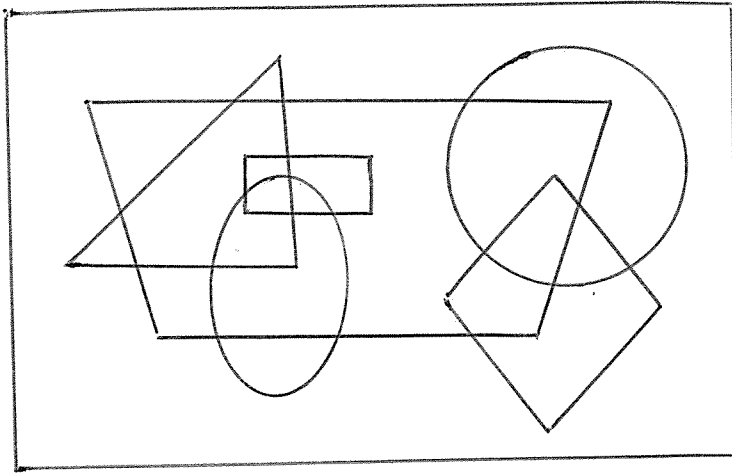
Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the six overlapping shapes in your design.

Draw a border round the design as shown in the diagram.



### Exercise 64



The diagram shows six different and overlapping shapes.

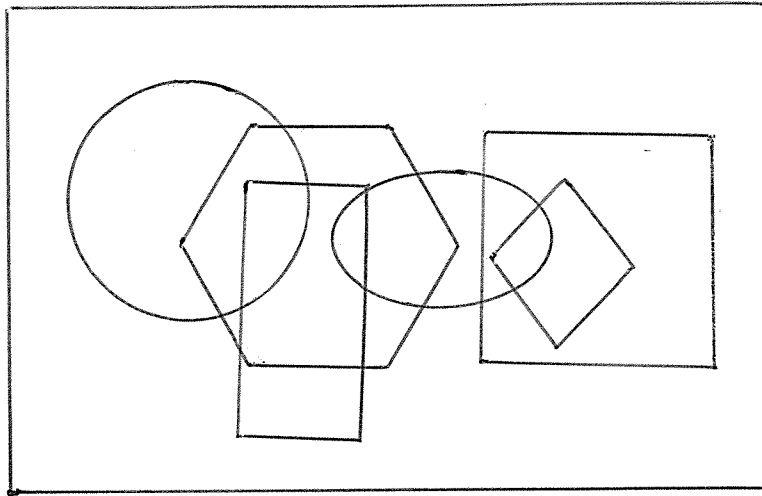
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the six overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 65



The diagram shows six different and overlapping shapes.

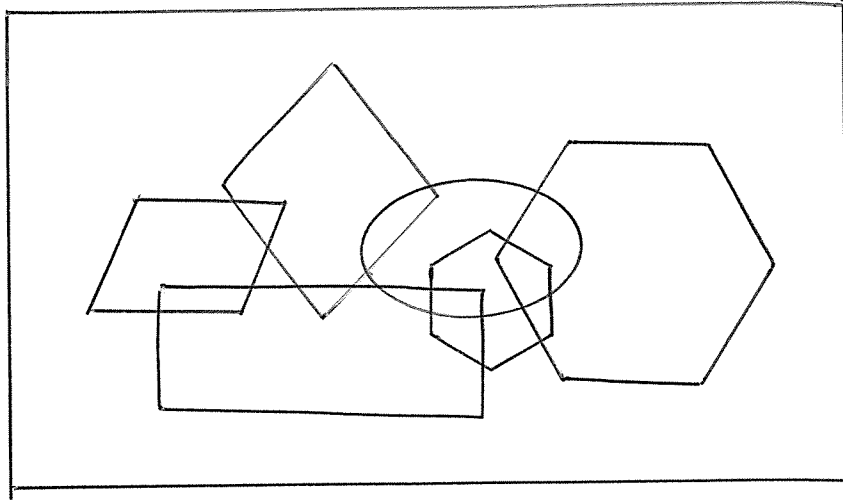
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the six overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 66



The diagram shows six different and overlapping shapes.

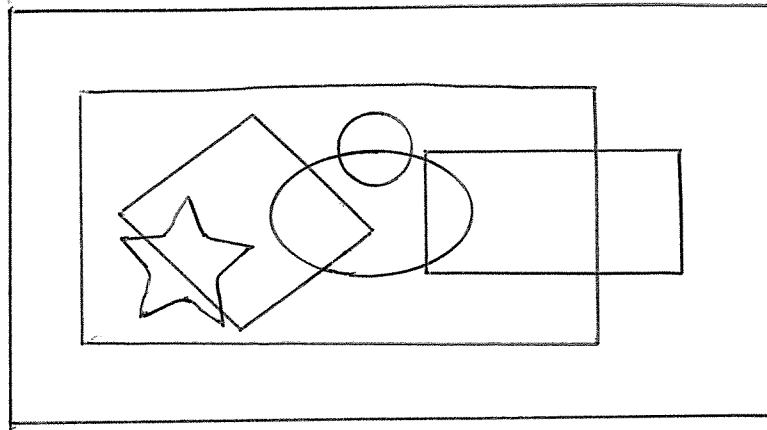
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the six overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 67



The diagram shows six different and overlapping shapes.

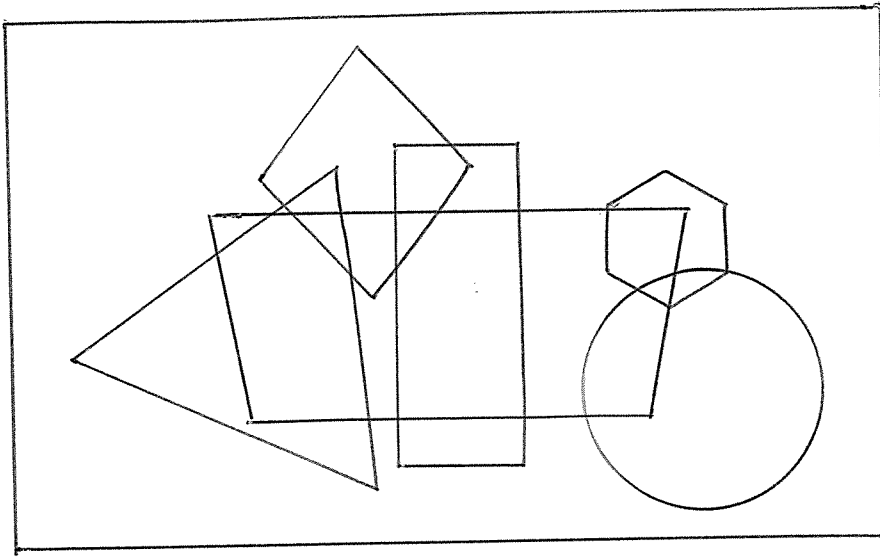
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the six overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 68



The diagram shows six different and overlapping shapes.

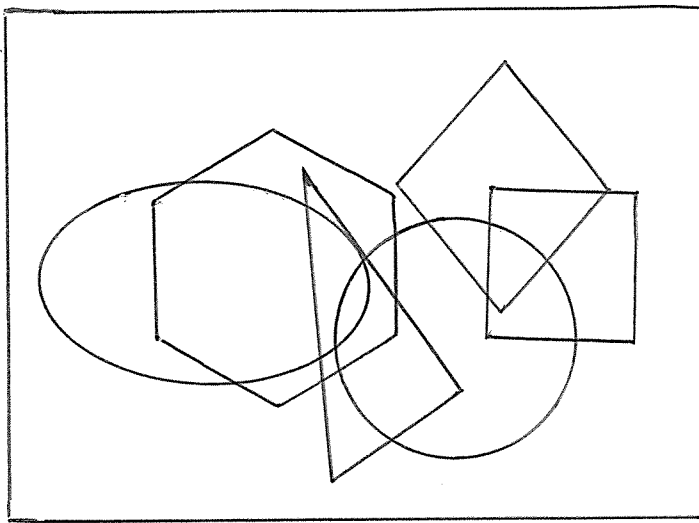
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the six overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 69



The diagram shows six different and overlapping shapes.

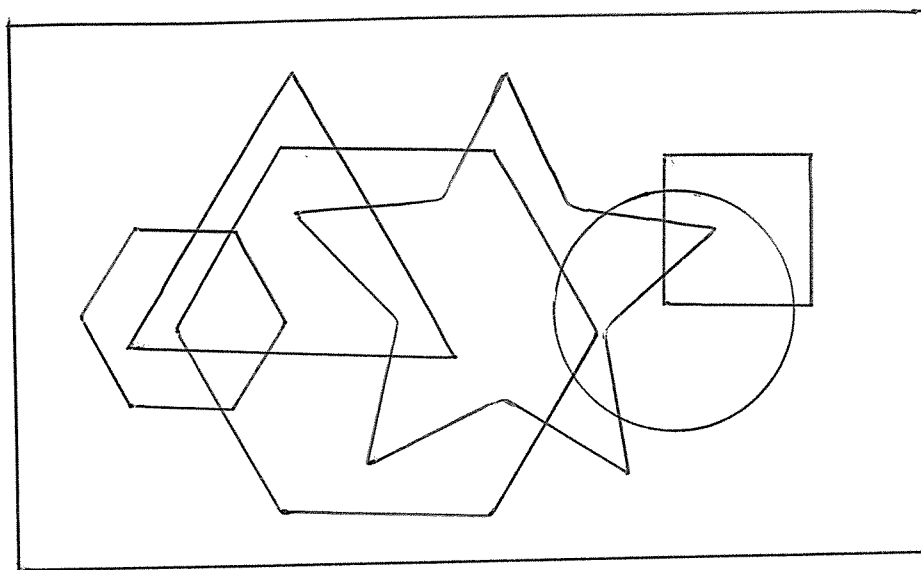
On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the six overlapping shapes in your design.

Draw a border round the design as shown in the diagram.

## Exercise 70



The diagram shows six different and overlapping shapes.

On white paper, using your non dominant hand, a ruler and pencil or pen, or a geometric shapes stencil, make a similar sketch of the diagram.

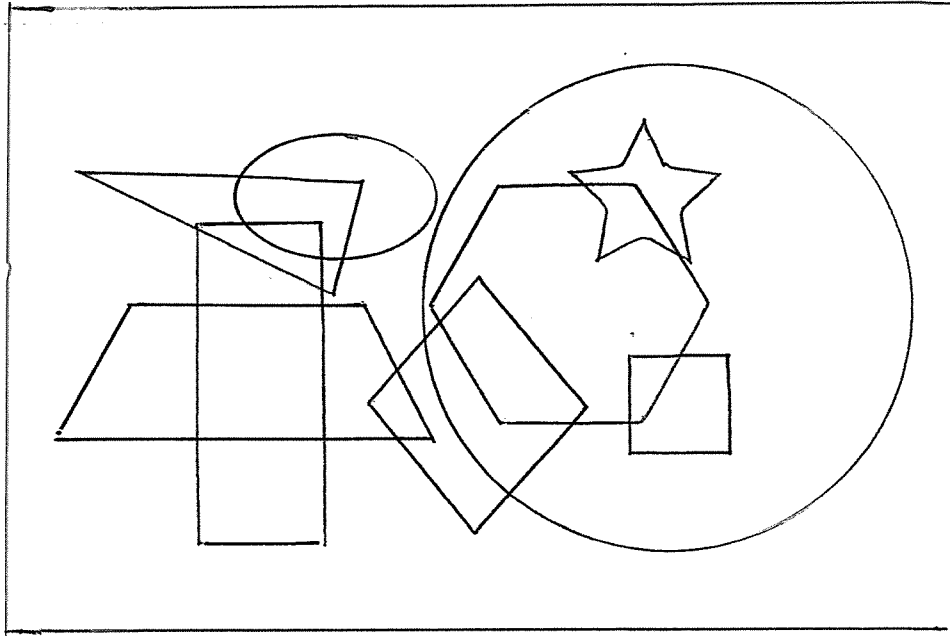
Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method you prefer, by shading in the areas in the design created by the overlapping shapes.

Name the six overlapping shapes in your design.

Draw a border round the design as shown in the diagram.



### Exercise 71



The diagram shows a number of overlapping shapes.

On white paper, use your non dominant hand, a geometric shapes stencil, a pencil or pen to make a similar sketch.

Using your non dominant hand again, complete the design using coloured pencils, felt pens or any other colouring method by shading in all the spaces created by the overlapping shapes in the diagram in different colours.

Count the number of different overlapping shapes in the diagram and name them.

