

# Precious Waste

## Desirable Features: Exploring Programming

### Task Description

In this task pupils should use Black Cat Logo at the blue level. The task is set out in two parts.

In Part 1 the pupil will be asked to direct a rubbish collection truck along a road to the Recycling Centre and in Part 2 they will be asked to design a badge for the recycling centre.

Pupils working at level 3 (Part 1) should write one sequence of commands to take the truck to the centre.

Pupils working at Level 4 should complete part 1 and part 2a.

Pupils working at level 5 should devise and build a succession of procedures to design a badge for the centre. They should make use of the tools available within the program. They must complete all sections of Part 2.

This task provides teachers with the opportunity to develop pupils' skills in numeracy (Using Maths).

### Requirements for UICT

This task focuses on the following aspects of UICT across the curriculum which have been highlighted in **bold**.

#### Explore

- access, select, interpret and research information from safe and reliable sources;
- **investigate, make predictions and solve problems through interaction with digital tools.**

#### Express

- create, develop, present and publish ideas and information responsibly using a range of digital media and manipulate a range of assets to produce multimedia products.

#### Exchange

- communicate safely and responsibly using a range of contemporary digital methods and tools, exchanging, sharing, collaborating and developing ideas digitally.

#### Evaluate

- **talk about, review and make improvements to work, reflecting on the process and outcome and consider the sources and resources used, including safety, reliability and acceptability.**

#### Exhibit

- **manage and present their stored work and showcase their learning across the curriculum, using ICT safely and responsibly.**

### Areas of Learning

Depending on the context chosen by the teacher, this task has the potential to support one or more of the following Areas of Learning:

The Arts	
Language and Literacy	
<b>Mathematics and Numeracy</b>	✓
Personal Development and Mutual Understanding	
Physical Education	
The World Around Us	

Please Note: For assessment purposes, only the 'E's that are covered at the level(s) stated on the task have been bolded.

Depending on how the task is approached, it may touch on elements of the unbolded 'E's, although not necessarily at the level(s) stated.

# Precious Waste

## Thinking Skills and Personal Capabilities

This assessment task also provides pupils with the opportunity to develop and demonstrate aspects of Thinking Skills and Personal Capabilities.

Managing Information

Thinking, Problem-Solving and Decision-Making

Being Creative

Working with Others

Self-Management.

## Prior Knowledge/Experience

Depending on the level at which they are working, pupils should have some experience in some of the following:

- knowledge of regular 2D shapes and their angle properties;
- tessellation patterns;
- using Black Cat Logo (or other Logo program);
- altering pen width and colour;
- using repeat commands to draw patterns/shapes;
- designing and naming simple procedures to draw patterns/shapes; and
- saving and printing work.

## Resources

Suitable software: Black Cat Logo or other Logo program.

Download the jpeg background from the task list area of the CCEA website. A helpsheet is available on the CCEA website.

This task can also be used with Scratch. See Pupil Notes (Using Scratch). (The background jpeg for Part 1 can be downloaded from the CCEA ICT Accreditation Microsite. The teacher will need to save the background into the Public folder.)

## Managing the Task

Pupils should be given opportunities to:

### Plan

#### Part 1

- Pupils need to set the turtle to the 'Home' position. They need to type: `sethome(leave space)67(leave space)430` – they then need to clear screen – CS.
- They should now move the background image from the Public folder to their documents folder. From here they insert the background.
- Using the Pupil Notes as a stimulus, pupils should plan and write commands to take the truck to the Recycling Centre. It is very important that the children type in all the commands before hitting the Enter/Return key. In this way the truck will be shown doing the complete journey.

#### Part 2

- Working on paper the pupils can work out the procedure needed to create a 'hex', 'triplehex' and 'badge' as shown on the Pupil Notes.

### Do

Pupils should work individually to test out the commands. They should make use of pen width and colour. They should save and print their work.

### Review

Pupils should be given the opportunity to discuss the outcome with their peers. They should reflect on the process and make any improvements if required.

## Assessing Pupils' Responses to the Task

The first column of the Assessment Criteria Grid sets, in bold, the Requirements for UICT that are covered in this task. Alongside this are the Levels of Progression (those related to the task are in bold) and the UICT Desirable Features for Exploring Programming at Levels 3, 4 and 5. These Desirable Features have been produced as guidance for teachers to consider when observing a pupil and assigning a level to a piece of work. When coming to a holistic judgement of the pupil's level of

UICT competence, teachers should ensure that these Desirable Features are used in conjunction with the UICT Levels of Progression.

**This task may provide opportunities for pupils to work collaboratively online (Exchange) and showcase work online (Exhibit). Teachers should include these, where possible, as set out in the Desirable Features.**

Assessment Criteria Grid

UICT Requirements	Level 3	Level 4	Level 5
<b>Explore</b> <ul style="list-style-type: none"> <li>access, select, interpret and research information from safe and reliable sources;</li> <li><b>investigate, make predictions and solve problems through interaction with digital tools.</b></li> </ul>	Pupils can: <ul style="list-style-type: none"> <li>research, select, edit and use information from given digital sources (explore);</li> <li><b>carry out and edit a series of instructions, make predictions and solve problems using a digital device or environmental (explore);</b></li> </ul>	Pupils can: <ul style="list-style-type: none"> <li>research, select, edit and use assets from a range of digital sources (explore);</li> <li><b>investigate and solve problems in a digital environment (explore);</b></li> </ul>	Pupils can: <ul style="list-style-type: none"> <li>research, select, edit, use and evaluate assets from a range of digital sources (explore);</li> <li><b>investigate and solve problems in a range of digital environments (explore);</b></li> </ul>
<b>Express</b> <ul style="list-style-type: none"> <li>create, develop, present and publish ideas and information responsibly using a range of digital media and manipulate a range of assets to produce multimedia products.</li> </ul>	<ul style="list-style-type: none"> <li>communicate and develop ideas by creating and editing text onscreen – combining this with an appropriate selection of images and/or sounds (express);</li> </ul>	<ul style="list-style-type: none"> <li>process found or self-produced assets, including text, data, sound, still or moving images, and combine these to create, present and communicate their work, showing an awareness of audience and purpose (express);</li> </ul>	<ul style="list-style-type: none"> <li>process found and self-produced assets, integrating text, data, sound, still and moving images to create, present and communicate their work, demonstrating a clear understanding of audience and purpose (express);</li> </ul>
<b>Exchange</b> <ul style="list-style-type: none"> <li>communicate safely and responsibly using a range of contemporary digital methods and tools, exchanging, sharing, collaborating and developing ideas digitally.</li> </ul>	<ul style="list-style-type: none"> <li>understand that digital methods can be used to communicate and make a contribution to a supervised online activity (exchange);</li> </ul>	<ul style="list-style-type: none"> <li>use contemporary digital methods to communicate, exchange and participate in a range of supervised online activities (exchange);</li> </ul>	<ul style="list-style-type: none"> <li>use a range of contemporary digital methods to communicate, exchange and share their work collaborating online with peers (exchange);</li> </ul>
<b>Evaluate</b> <ul style="list-style-type: none"> <li><b>talk about, review and make improvements to work, reflecting on the process and outcome and consider the sources and resources used, including safety, reliability and acceptability.</b></li> </ul>	<ul style="list-style-type: none"> <li><b>make modifications to improve their work (evaluate); and</b></li> </ul>	<ul style="list-style-type: none"> <li><b>use appropriate ICT tools and features to improve work (evaluate); and</b></li> </ul>	<ul style="list-style-type: none"> <li><b>use appropriate ICT tools and features to carry out ongoing improvements and reflect on process and outcome (evaluate); and</b></li> </ul>
<b>Exhibit</b> <ul style="list-style-type: none"> <li><b>manage and present their stored work and showcase their learning across the curriculum, using ICT safely and responsibly.</b></li> </ul>	<ul style="list-style-type: none"> <li><b>save using file names and select work to showcase learning digitally (exhibit)</b></li> </ul>	<ul style="list-style-type: none"> <li><b>select, organise, store and retrieve their work to showcase learning digitally in a personalised area (exhibit).</b></li> </ul>	<ul style="list-style-type: none"> <li><b>organise, store and maintain their work within a personalised area to showcase learning across the curriculum (exhibit).</b></li> </ul>

Assessment Criteria Grid

UICT Requirements	Desirable Features – Level 3 (Exploring Programming)	Desirable Features – Level 4 (Exploring Programming)	Desirable Features – Level 5 (Exploring Programming)
<p><b>Explore</b></p> <ul style="list-style-type: none"> <li>access, select, interpret and research information from safe and reliable sources;</li> <li><b>investigate, make predictions and solve problems through interaction with digital tools.</b></li> </ul>	<p>Typically the pupil can:</p> <ul style="list-style-type: none"> <li>input simple sequences of commands (explore);</li> <li>use more efficient commands such as repeat (explore);</li> <li>work collaboratively online where appropriate (exchange); and</li> <li>talk about how and why they chose commands and suggest modifications (evaluate); and</li> <li>save work to a specified location and give it a suitable name (exhibit).</li> </ul>	<p>Typically the pupil can:</p> <ul style="list-style-type: none"> <li>input more complex sequences of commands (explore);</li> <li>build and edit simple procedures (explore);</li> <li>work collaboratively online, for example, using Scratch, download a project and edit it (exchange); and</li> <li>discuss how they could improve their commands and procedures and make any necessary modifications (evaluate).</li> </ul>	<p>Typically the pupil can:</p> <ul style="list-style-type: none"> <li>build and edit more complex procedures to solve a problem (explore);</li> <li>group sequences of procedures together (explore);</li> <li>work collaboratively online, for example, using Scratch, download a project it, edit it and then share this with others online (exchange);</li> <li>consider the output of the procedures and use trial and error to refine these as needed (evaluate);</li> <li>reflect on what might they could do to make procedures most efficient (evaluate); and</li> <li>showcase work, in Scratch, by uploading the project (exhibit).</li> </ul>
<p><b>Express</b></p> <ul style="list-style-type: none"> <li>create, develop, present and publish ideas and information responsibly using a range of digital media and manipulate a range of assets to produce multimedia products.</li> </ul>			
<p><b>Exchange</b></p> <ul style="list-style-type: none"> <li>communicate safely and responsibly using a range of contemporary digital methods and tools, exchanging, sharing, collaborating and developing ideas digitally.</li> </ul>			
<p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li><b>talk about, review and make improvements to work, reflecting on the process and outcome and consider the sources and resources used, including safety, reliability and acceptability.</b></li> </ul>			
<p><b>Exhibit</b></p> <ul style="list-style-type: none"> <li><b>manage and present their stored work and showcase their learning across the curriculum, using ICT safely and responsibly.</b></li> </ul>			

Pupils should demonstrate, when and where appropriate, knowledge and understanding of e-safety including acceptable online behaviour.

# Precious Waste

## Part 1

The rubbish collection truck is full of rubbish which needs to go to the Recycling Centre.



Your task is to move the truck to the centre along the road.

Open Black Cat Logo at the Blue Level.  
In the command window type: sethome  
(leave space) 67 (leave space) 430 then  
press the Enter/Return key.

In the command window type 'home' and  
press the Enter/Return key.

Then in the command window type cs and  
press the Enter/Return key, this will  
clear the screen and set the turtle to the  
correct position.

Go to the 'Choose Background' icon and  
select Browse. Browse to the Public Folder  
where your teacher has saved the recycling  
road background and open it.

## Precious Waste

You have been asked to take the recycling truck to the recycling centre. Spend some time working out and testing the commands to do this.



When you have got it right you should enter all the commands and press Enter.

This will run your entire sequence so that you can see if it works.

If your truck moves to the centre without coming off the road then your sequence is correct and you can print out your work.

If it does not work then click the Undo button or the Home button and try again.

Change to Red Level, go to Options - Speed and select Slow then go to Save As to save your work into your documents folder.



Open your file and show it to someone in your class and discuss if or how you could have made it better.

# Precious Waste

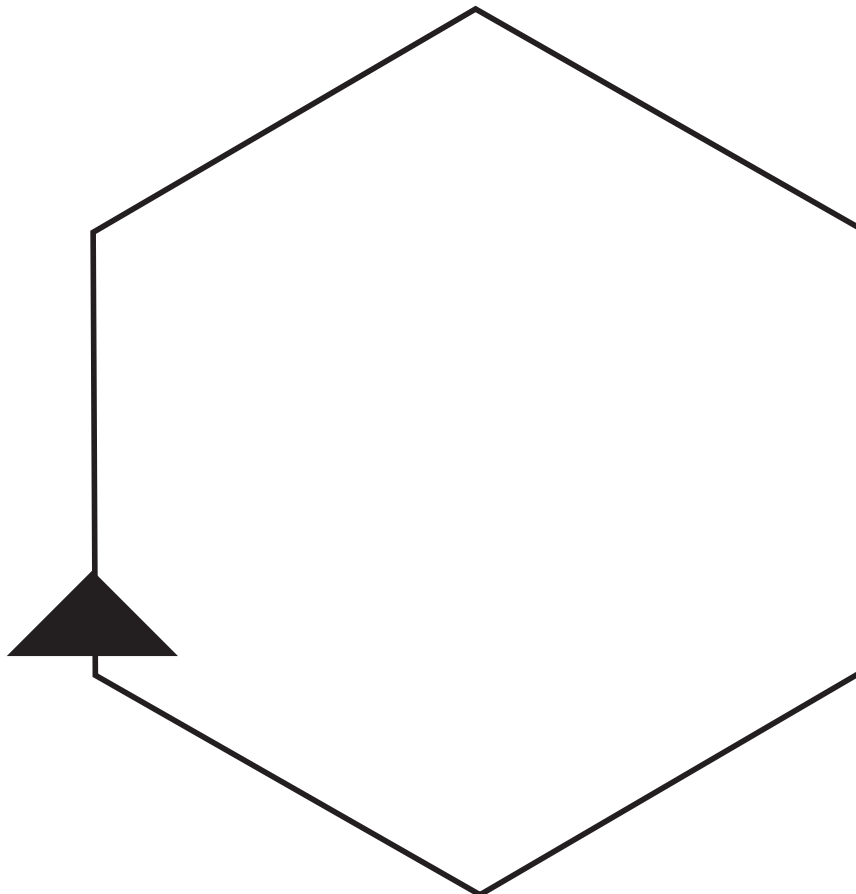
## Part 2(a)

Your task is to design a badge for the Recycling Plant.

Start a new Logo page (Blue level)

(a) Write a procedure to draw a small hexagon, side lengths 100. Call your procedure 'hex'.

You may use any colour and pen width.  
Your hexagon should look like this:



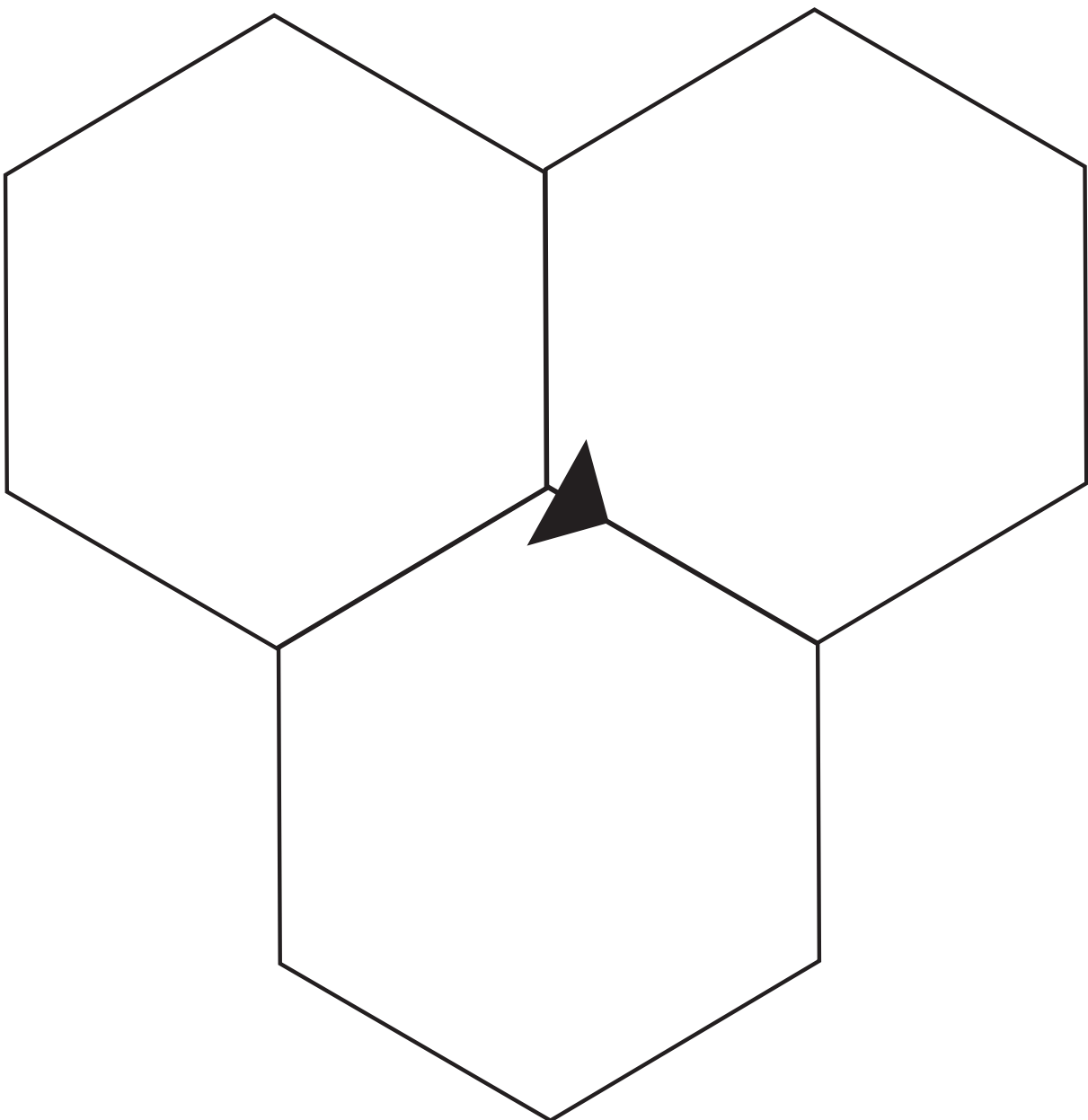
Save your file and show it to someone in your class.

# Precious Waste

**Part 2 (b) To continue making your badge:**

(b) Write a procedure embedding 'hex' called 'triplehex'

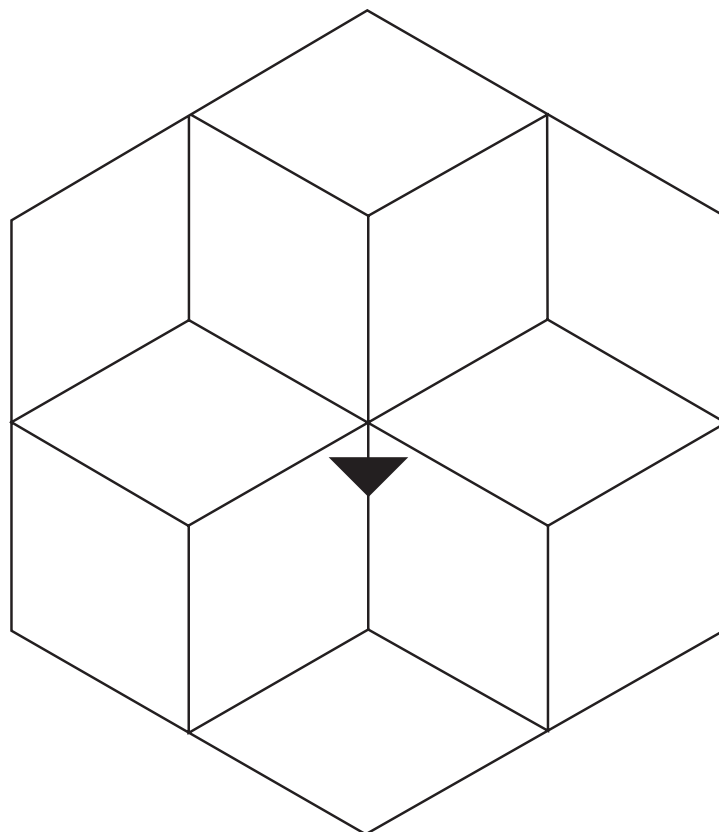
Your triplehex should look like this:



# Precious Waste

(c) Write a procedure embedding hex and triplex to make a badge for the Recycling Plant. Call your procedure 'badge'.

Your badge should look like this:



Change to Red Level, go to Options - Speed and select Slow then go to Save As to save your badge into your documents folder.

Open your file again and let someone see what you have done.

# Precious Waste

## (using Scratch)

### Part 1

The rubbish collection truck is full of rubbish which needs to go to the Recycling Centre.



Your task is to move the truck to the centre along the road.

Open the Scratch file.

You have been asked to take the recycling truck to the recycling centre. Spend some time working out and testing the commands to do this.



If your truck moves to the centre without coming off the road then your sequence is correct and you can print out your work.

If it does not work then try again.

When you have got it right save the file.

Open your file and show it to someone in your class and discuss if or how you could have made it better.



# Precious Waste

## (using Scratch)

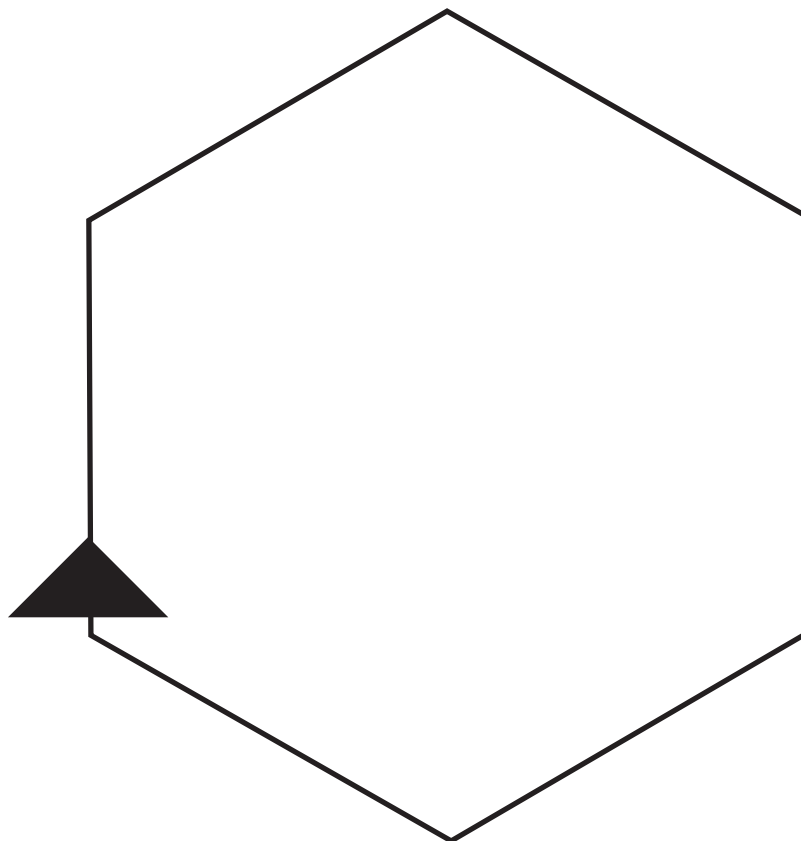
### Part 2 (a)

Your task is to design a badge for the Recycling Plant.

Start a new Scratch project

(a) Write a procedure using broadcast/receive to draw a small hexagon, side lengths 50. Call your procedure 'hex'.

You may use any colour and pen width.  
Your hexagon should look like this:



Save your file and show it to someone in your class.

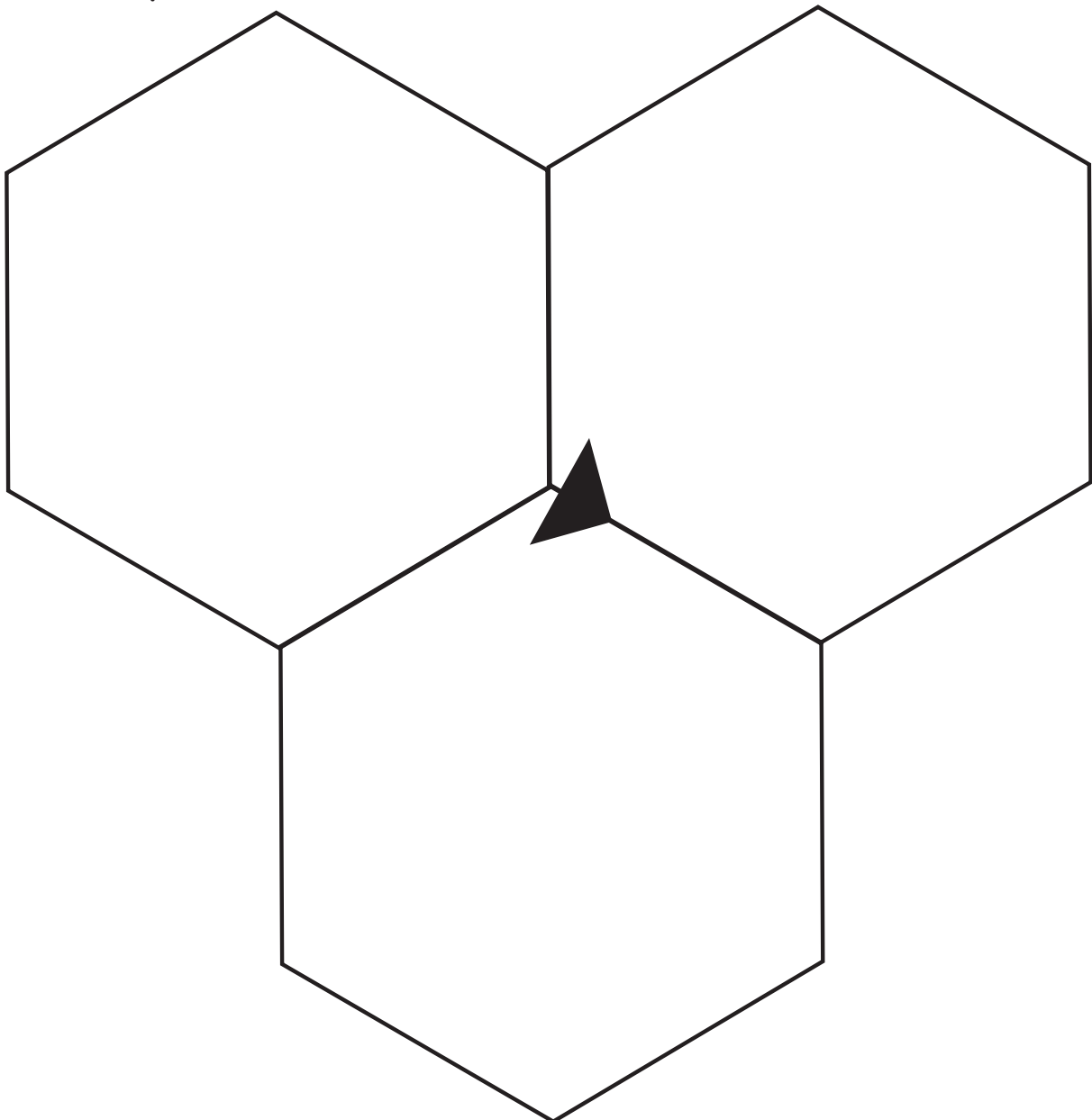
# Precious Waste

## Part 2 (b)

To continue making your badge:

(b) Write a procedure using broadcast/ receive embedding 'hex' called 'triplehex'

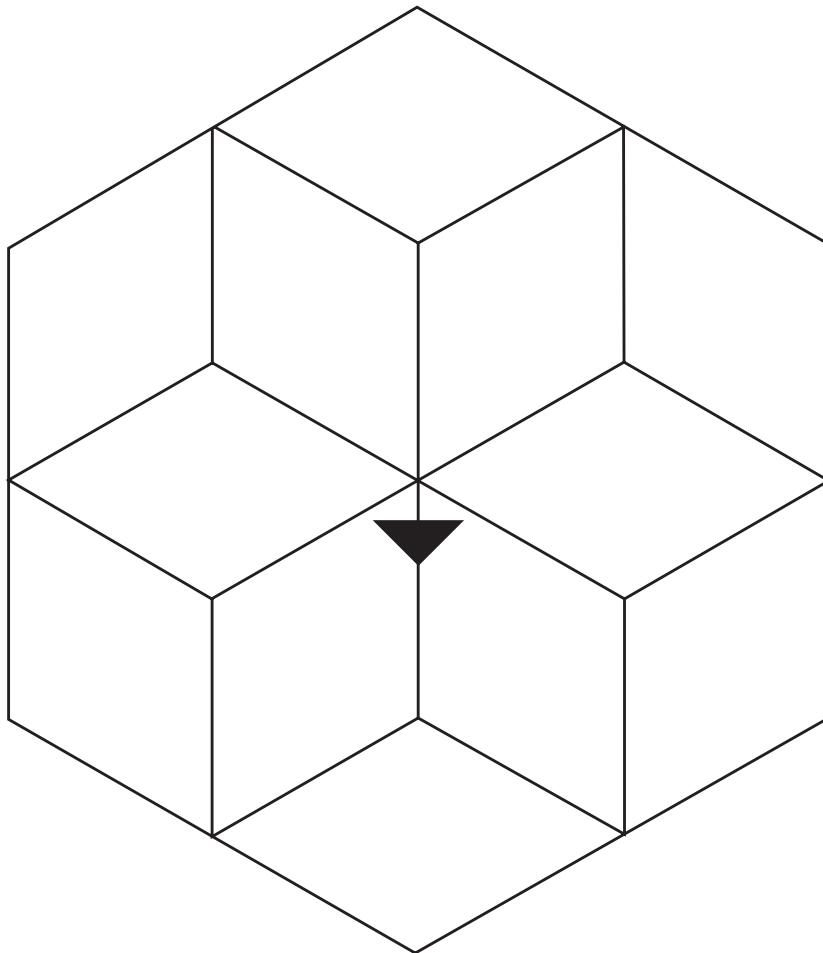
Your triplehex should look like this:



## Precious Waste

(c) Write a procedure embedding hex and triplex to make a badge for the Recycling Plant. Call your procedure 'badge'.

Your badge should look like this:



Go to *Save As* to save your badge into your documents folder.

Open your file again and let someone see what you have done.