

**Collins**

## We're here to help!

For more information and for order queries, please contact Tom Cane, our Caribbean Sales Manager.

Tom Cane



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Title	ISBN	Qty
<b>Integrated Science for the Caribbean Student Books</b>		
Collins Integrated Science for the Caribbean – Student Book 1	978-0-00-811595-1	
Collins Integrated Science for the Caribbean – Student Book 2	978-0-00-811596-8	
Collins Integrated Science for the Caribbean – Student Book 3	978-0-00-811597-5	
<b>Integrated Science for the Caribbean Workbooks</b>		
Collins Integrated Science for the Caribbean – Workbook 1	978-0-00-811598-2	
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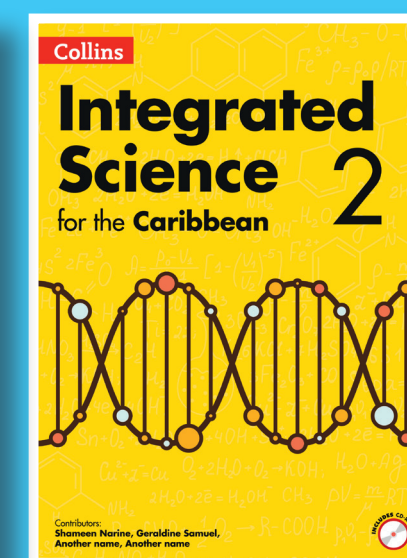
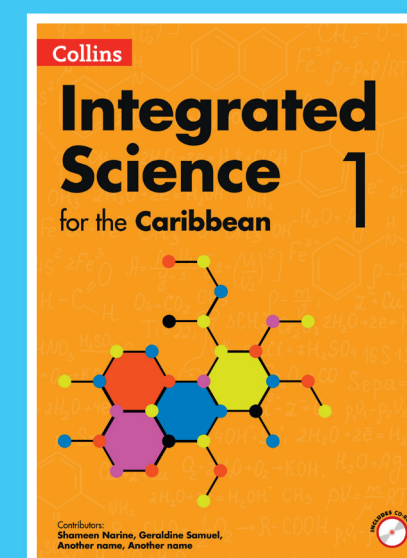
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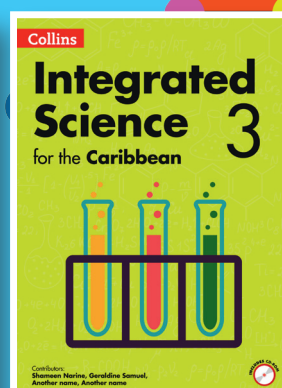
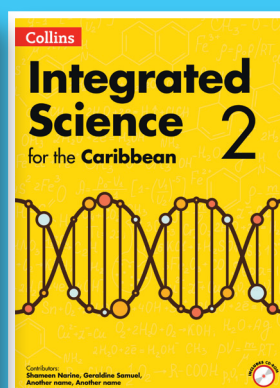
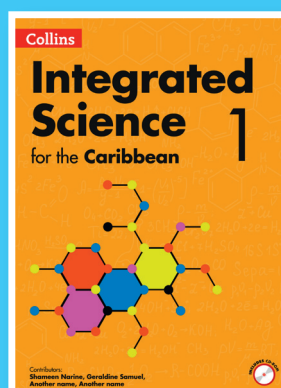
# Integrated Science

for the **Caribbean**

Inspire lower secondary students with an activity-led course set in relevant contexts



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- Written specifically for the Caribbean and with full coverage of the Trinidad and Tobago syllabus
- Offers hands-on activities that will help students to study science by doing it
- Written by science education experts and teachers in the Caribbean

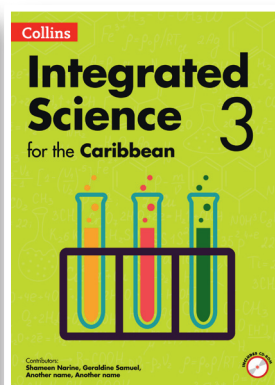
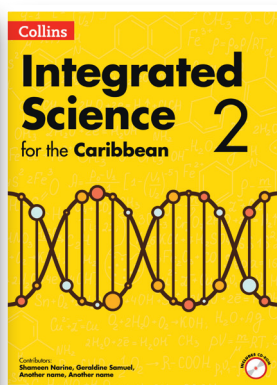
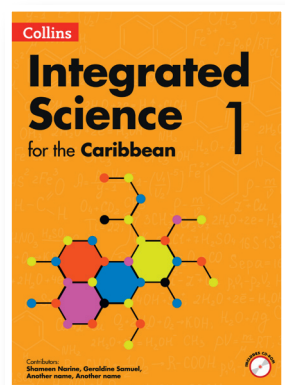
**Get in touch to find out more!**

# Integrated Science

for the **Caribbean**

**Collins Integrated Science for the Caribbean** is an activity-led course full of local examples. Suitable for lower secondary students, it develops the skills needed for success in science alongside developing scientific knowledge.

The course has been written specifically for the Caribbean and fully meets the requirements of the **Republic of Trinidad and Tobago Ministry of Education Secondary School curriculum**.

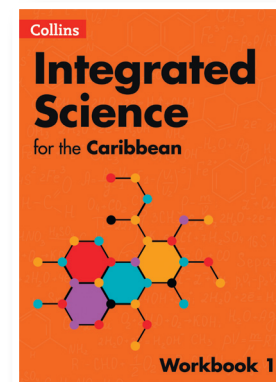


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## How is Collins Integrated Science for the Caribbean structured?

- There are 3 Student Books for lower secondary, covering Form 1 to Form 3
- Each of the Student Books is accompanied by a Workbook
- For more information on the structure of the individual Student Books, please refer to the table of content pages printed in the Sample Units
- If you'd like to request Sample Units, please get in touch with Tom Cane at [tom.cane@harpercollins.co.uk](mailto:tom.cane@harpercollins.co.uk)



## Student Books

Help students and teachers understand the purpose of topics quickly with clear learning objectives introducing each unit

Guide students with clear instructions and guidance on practical activities

Make the content accessible with clear explanations about each topic

Use practical activities throughout to engage students and bring science to life

Form 1

## Classifying life according to cellular structure

We are learning how to:

- compare plant and animal cells according to their structure and function.

### Preparing a specimen of animal cells

Although there are many different kinds of animal cells, a convenient source on cells is the lining of the cheek inside the mouth.

In order to see detail more clearly, specimens are sometimes stained with a dye. In the case of **cheek cells**, the dye **methylene blue** is used. This makes the cells look blue when examined.

To apply a dye, the specimen should be placed on a microscope in a drop of water. A drop or two of dye is then added. The specimen should be left for a few minutes to allow the dye time to pass into the cells. After this the excess water can be removed with a tissue.

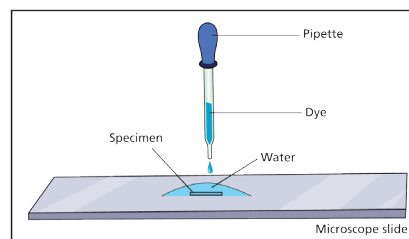


FIG 1.5.12 Applying stain to a specimen

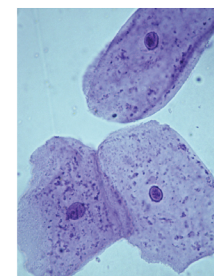


FIG 1.5.11 Stained cheek cells

### Activity 1.5.2

#### Preparing and observing cheek cells

Here is what you need

- microscope
- microscope slide
- cover slip
- methylene blue dye
- tissue paper
- wooden spill
- distilled water

4 Lower Secondary Integrated Sciences: Classifying life according to cellular structure

Here is what you should do:

1. It is not necessary to cut the cheek in order to obtain a sample of animal cells. Cells are continually being worn off the surface of the body including the inside of the cheek. Cheek cells are obtained by gently scraping the inside of the cheek with a suitable blunt object such as the flat end of a tooth pick or a wooden spill.

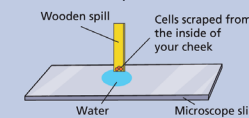


FIG 1.5.13

2. Place some cheek cells from inside your mouth and place them in the drop of water on the slide.
3. Place a single drop of methylene blue solution on the specimen and leave it for about one minute.
4. After this, carefully lower a cover slip onto the specimen. You will probably find that the cover slip sits on top of the water. Before the specimen can be observed the excess water and dye must be removed.

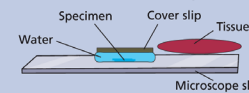


FIG 1.5.14

5. Place a tissue next to the cover slip so that it is just touching the water.
6. Start by observing your cheek cells under low power. It is much easier to see the arrangement of cells.
7. Move the slide so that the part you want to focus on is in the centre of the image. Alter the combination of lens to see the image under higher power. Draw your cheek cells.

### Check your understanding

1. Why is it important that the mouth is clean i.e. contains no particles of food, before obtaining cheek cells?
2. Suggest why it is not a good idea to scrap off cheek cells using a finger nail.
3. Why is it essential that the dye used to colour a specimen does not come into contact with clothing?

Enable teachers and students to check progress with quick questions

1.5

### Did you know...?

Cells are sometimes stained with combinations of different dyes.

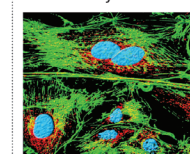


FIG 1.5.15 Different parts of a cell show up different colours

Each dye is absorbed by a different part of the cell so that the parts are easier to see.

### Key terms

cheek cell  
methylene blue  
wicking

Provide fascinating extra facts and information with the 'Did you know...?' feature

Highlight terms crucial to understanding that students may not have come across before

## Workbooks

- Provide opportunities for written activities
- Enable students to record their personal progress throughout the course
- Help students to consolidate the learning from activities carried out in class
- Offer useful resources for homework activities

## Want to find out more?

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