Welcome to kerboodle

Use this guide to...

- find out more about Complete Computer Science for Cambridge IGCSE® & O Level
- view sample content

To navigate through this guide, click on the arrow buttons at the bottom of the page. OR, use the contents list above to click directly to areas you want to see.
What is Kerboodle?
What is Kerboodle?

Oxford Kerboodle Online Resources blends teaching resources with online functionality to help you engage learners, plan teaching and measure progress. It’s intuitive to use, customizable and you can access it online anytime.

Oxford Kerboodle Online Resources helps you:

- **Involve students in learning** – hands-on activities practically engage learners with scientific concepts
- **Track progress** – digital assessment tools prepare learners for assessment and help you measure comprehension
- **Support exam performance** – in-depth exam strategies and exam-style activities help students prepare for exams effectively

The IGCSE Computer Science Kerboodle Online Resources support the latest Cambridge syllabus (0478) for first examination in 2017. Resources are also linked to the new [Computer Science Course Book](#) and [Teacher Guide](#) to help streamline your planning.
What is Kerboodle?

Two online learning components are available:

- **Kerboodle Online Resources** – resources, assessment and teacher support, available as an annual subscription for an unlimited number of users. Digital copies of the Student Book and Teacher Guide are included for teacher use.

- **Online Course Book** – core classroom text that supports and extends Kerboodle Online Resources, available to purchase separately. Also available as a print & online pack.

You can choose to use one or the other, or both – you decide what you and your students need.

*Available to purchase separately*
Resources
What resources are included?

- The Resources section of Kerboodle provides classroom support, including:
  - Activities and assessments that practically engage learners with concepts
  - Worksheets that help reinforce key concepts, develop vocabulary and drive critical thinking
  - A selection of interactive activities that support key learning objectives

- Most resources are printable and photocopiable and provide extra support for:
  - Practicals
  - Multiple programming languages
  - Activities and skills development

- Plus, you can easily upload your own resources and share these with colleagues
Starter Activity

Read the scenarios in the table below and in each case decide what type of sensor will be used.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Sensor type</th>
</tr>
</thead>
<tbody>
<tr>
<td>When someone walks into a room the light switches on automatically. When they leave the room the light switches off automatically after a few minutes.</td>
<td></td>
</tr>
<tr>
<td>A robot vacuum cleaner moves around a room picking up dust. When it hits a solid object it turns and moves off in another direction.</td>
<td></td>
</tr>
<tr>
<td>In a museum the blinds automatically close in extreme conditions to protect valuable items from direct sun.</td>
<td></td>
</tr>
</tbody>
</table>

Starter activities are auto-marked and easily assigned as homework.
Printable practical worksheets give able students opportunities to extend beyond the syllabus.
Interactive activity provide students with feedback to their answers, helping them identify weaker areas.
9.1 Verification and validation in practice

Introduction
A major drawback to the storage and use of data in computing systems is how to ensure it is accurate. It is impossible to know whether data entered is correct or not, but there are techniques available to ensure the data entered is the same as the data supplied, or that the data entered is sensible. These techniques are referred to as verification and validation, respectively.

In this WebQuest, you will work with a group to examine the specific techniques for verification and validation and produce some practical demonstrations of these techniques.

Task
Working in a group, investigate the need for verification and validation checks. Find out about specific methods of doing this, and in the case of validation checks, look at range checks, length checks, type checks and check digits. You will create some simple programs to verify data input and to validate data input and explain how they work, in a programming language of your choice, or pseudocode.

After you have completed your research, create a presentation of approximately five minutes to explain your findings. The final presentation is intended as a teaching aid for a group of students younger than yourself.

Process
Step 1: Initial discussion and roles
In your group, discuss the overall task and distribute its various elements amongst the members of the group. You could have a sub-group looking at validation and another sub-group looking at verification. In each group you will need to find out about the overall meaning of your topic, as well as the specific methods. You will also need an example of code that you have written using programming code or pseudocode that is fully explained.

Step 2: Research
Carry out your research and summarise your findings. Check it for accuracy, consistency, conciseness, and then make sure it is in a suitable format to discuss with the rest of your group.

Step 3: Collaboration and presentation of work
As a group, review the information each member has collected and decide which parts will be used for your presentation. Make sure the presentation format is consistent across all group members' work and that the style is suitable for its purpose.

Create the presentation to clearly explain verification and validation, along with the specified validation checks. Ensure there is an example of code showing a verification and validation technique in practice.
On Your Marks: Understand & Prepare

5.2 Computer languages: Understand and prepare

Read the sample answers and comments below. Then match each comment to an answer and click ‘Check answers’.

**Sample answer 1**
High-level languages are understood by humans.
A compiler translates the whole program into machine code before the program runs.

**Sample answer 2**
The computer only understands machine code so the program has to be translated before it will run.
A compiler translates the whole program into machine code in one operation and a copy of executable code is stored. An interpreter translates one line of source code at a time but it isn’t saved, so has to be translated each time it is run.

**Sample answer 3**
The interpreter translates one line of the program code at a time. It may find errors as it does this.

Examiner comments | Sample answer
---|---
1 correct point for each of the 2 parts of the question: why high-level language is not understood and feature of a compiler. | 
A comprehensive answer covering all parts of the question with two correct points for each part of the question. | 
A very good response regarding interpreters with 3 correct points, only worth 2 marks though. | 

On Your Marks: Understand & Prepare modules help students identify correct response styles and provides sample student answers. Sample examiner feedback is then assigned to the answers by the students, helping students identify varying quality answers.
Assessment
What’s included in the Assessment module?

Assessment resources are written in Cambridge exam-style and developed by examiners, helping you accurately prepare learners and build confidence.

The assessment module includes:
- A whole suite of digital assessments that you can assign to your students to complete at home
- Auto-marked assessments are available for all topics, saving you time and helping you easily measure progress

What types of assessment resources are included?
- Up to 40 formative quizzes that provide the learner with instant feedback
- Up to 10 summative quizzes that help learners gauge overall understanding of a topic
On Your Marks: Test

In On Your Marks: Test, students answer the question first presented to them in ‘Understand & Prepare’ and conduct self assessment to ensure they meet all exam requirements.
Formative quizzes help students solidify concepts.
Summative Quiz

Prepare for exams and review material with summative quizzes

8.5 Data structures quiz

This code creates a Python list.

```python
Customer = ["Thomas", "Jordan", "Ali"]
```

What would be the display for the following command?

```python
print(Customer[1])
```

- Jordan
- ["Thomas", "Jordan", "Ali"]
- Thomas
- Customer
Planning
What’s included in the Planning section?

- The Planning section of Kerboodle helps you:
  - Drive creativity and engagement, fully incorporating the Cambridge pedagogy into learning
  - Develop the right key skills and drive performance in exams and future study
  - Create presentations and your own customized lesson plans to support your individual classes
  - Share your plans and presentations with colleagues and access your colleagues’ resources all in one place

- This section includes:
  - Many ready-made presentations that guide you through the syllabus
  - Built in tools for you to create your own lesson presentations
Example of the Lesson Creation tool

Create your own lesson presentations and share these with colleagues.

Digital camera

- A digital camera has an aperture (a hole) at the front.
- The aperture contains a lens.
- Light comes through the aperture.
- The lens focuses the light onto a sensitive electronic surface.
- The surface is made of a grid of tiny sensors.
- The sensors turn the pattern of light into electrical signals.
Markbook & reporting
What is the Markbook?

The Markbook is the record of all work you have sent to your students, as well as the place where you see submitted work, assign marks and run reports.

In this section you can:

- See submitted work from students, including uploaded homework files and individual answers to interactive quizzes
- Assign marks and run reports to measure achievement across a group, or across a student’s different assessments
- Access three different types of reports: diagnostic, group and student
- Export report data to load into another system, or print for records or parent information
Example of a diagnostic report

1. DIAGNOSTIC REPORT

Class 12 - Diagnostic Markbook Report

<table>
<thead>
<tr>
<th>TITLE</th>
<th>DUE DATE</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3 Formative assessment</td>
<td>25/10/2013</td>
<td>Average Group Score: 54 %</td>
</tr>
<tr>
<td>Joanna Clarke</td>
<td>1/10</td>
<td>35 %</td>
</tr>
<tr>
<td>Jean Georges</td>
<td>1/12</td>
<td>58 %</td>
</tr>
<tr>
<td>Mark Jones</td>
<td>1/16</td>
<td>58 %</td>
</tr>
<tr>
<td>Fully Submitted 1.2 Formative assessment</td>
<td>25/10/2013</td>
<td>Average Group Score: 35 %</td>
</tr>
<tr>
<td>Fully Submitted 1.2 Summative assessment</td>
<td>25/10/2013</td>
<td>Average Group Score: 72 %</td>
</tr>
</tbody>
</table>

CONTENTS

1. What is Kerboodle?
2. Resources
3. Assessment
4. Planning
5. Markbook and reporting
6. Online Course Books
7. Personalization
8. Find out more
Example of a group report

**2. GROUP REPORT**

### CONTENTS

1. What is Kerboodle?
2. Resources
3. Assessment
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**Class 12 - Markbook Report**

<table>
<thead>
<tr>
<th>Title</th>
<th>Due Date</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>Fully Submitted 1.3 Formative assessment</td>
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<td>54 %</td>
</tr>
<tr>
<td>Joanna Clarke</td>
<td>11 / 31</td>
<td>35 %</td>
</tr>
<tr>
<td>Jean Georges</td>
<td>21 / 31</td>
<td>68 %</td>
</tr>
<tr>
<td>Mark Jonas</td>
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<td>56 %</td>
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<tr>
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<td>35 %</td>
</tr>
<tr>
<td>Fully Submitted 1 Summative assessment</td>
<td>25/10/2013</td>
<td>72 %</td>
</tr>
</tbody>
</table>

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![Computer screen displaying a Markbook report](image)
### Example of a student report

#### 3. STUDENT REPORT

**Mark Jones - Markbook Report**

<table>
<thead>
<tr>
<th>TITLE</th>
<th>DATE</th>
<th>MARKS KEY</th>
<th>MARKS %</th>
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</thead>
<tbody>
<tr>
<td>4 Summative assessment</td>
<td>09 Feb</td>
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<tr>
<td>2.2 Formative assessment</td>
<td>07 Feb</td>
<td>Incomplete Submission</td>
<td></td>
</tr>
<tr>
<td>2.1 Formative assessment</td>
<td>25 Jan</td>
<td>6 / 7</td>
<td>86 %</td>
</tr>
<tr>
<td>2 Summative assessment</td>
<td>25 Jan</td>
<td>16 / 51</td>
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<tr>
<td>1.3 Formative assessment</td>
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<td>24 Jan</td>
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<td>6 / 8</td>
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<tr>
<td>1.1 Formative assessment</td>
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<td>1 Summative assessment</td>
<td>03 Jan</td>
<td>Incomplete Submission</td>
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Supporting resources:

Online Course Books

Available to purchase separately
What are the Online Course Books?

Online Course Books are digital versions of the complete print Course Books, which can be used as your core classroom texts.

Online Course Books are available to purchase separately from Kerboodle – for student use - digital versions of the Course Book and Teacher Guide are included in Kerboodle for teacher use)

You can access your Online Course Book from a range of devices, so long as you can access the internet.
Sample of the Online Course Book

Here are some **key features** of the Online Course Book.
Sample of the Online Course Book

Tangibly build computer science skills and confidence working with data

Directly matched to the latest syllabus with clear topic sign-posting

Embed all concepts with skill-testing questions and review

Contents

1. What is Kerboodle?
2. Resources
3. Assessment
4. Planning
5. Markbook and reporting
6. Online Course Books
7. Personalization
8. Find out more
Personalizing Kerboodle
How is Kerboodle customizable?

If you want to, you can really make Kerboodle your own. It offers so many customization options that enable you to tailor the content to fit your needs. For example, you can:

- Upload your own content and share this with your department
- Create class presentations with linked dynamic resources
- Add web links and then use these to jump directly to online content
- Create student groups within a course for bespoke assignments or reporting
- Add your own folders, grouping your resources and other content in your own way
Find out more

Next steps
If you like what you see, we can arrange a trial subscription for your school.
This means we’ll give you free access to Kerboodle for one month. After a month, we’ll automatically send you an invoice for a 12 months’ subscription, and you can continue using Kerboodle for the next 12 months.
If you decide Kerboodle isn’t for you, just email support@kerboodle.com within your first 30 days of access and we’ll cancel your trial subscription immediately.

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2. Call +44 1536 452620

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2. Call or email us using the details given left

*Trial subscriptions are free to evaluate for 30 days; after 30 days you will be invoiced. If you decide Kerboodle isn’t for you, just email support@kerboodle.com within your first 30 days to cancel your trial.