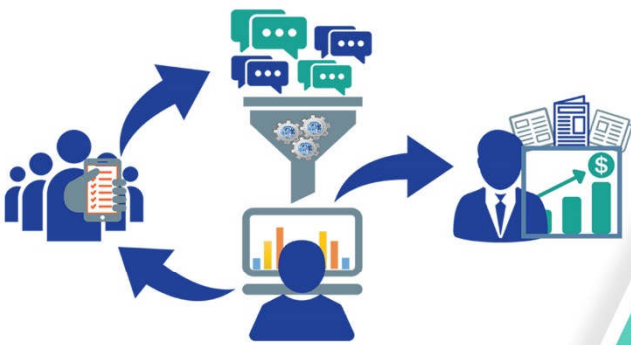


Surveys and Collecting Data



```
function(){card  
(window).on('rest  
function cards(){  
var width = $(wind  
if(width < 750){  
cardssmallsc  
}else{  
cardsbigsc
```





		Tasks
<input type="checkbox"/>	1. Thinking about Data	1, 2, 3, E
<input type="checkbox"/>	2. Revisiting Databases	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
<input type="checkbox"/>	3. Revisiting Spreadsheets	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
<input type="checkbox"/>	4. Data Collection Techniques	1, 2, 3, 4E
<input type="checkbox"/>	5. Capturing Quantitative Data	1, 2, 3, 4
<input type="checkbox"/>	6. Capturing Qualitative Data	1, 2, 3
<input type="checkbox"/>	7. Compiling Data	1, 2
<input type="checkbox"/>	8. Security and Privacy	1, 2, 3, 4, 5, 6
<input type="checkbox"/>	9. Legal Responsibilities	1, 2, 3, 4
<input type="checkbox"/>	10. Web Project: HTML	1, 2, 3
<input type="checkbox"/>	11. Web Project: Form Elements	1, 2, 3, 4, 5, 6, 7, E
<input type="checkbox"/>	12. Web Project: Style Sheets	1, 2, 3, 4
<input type="checkbox"/>	13. Web Project: JavaScript	1, 2, 3, 4, 5, 6, 7, 8, 9, E, GF



Data collection is the gathering of information from different sources to answer questions about something of interest. It is often collected by government institutions, businesses, academics and other researchers. The information can be used to evaluate how well things are working and make predictions about what will be needed in the future.

Aim: To learn a little about a range of data collection techniques.

Task 1 – The Techniques

There are lots of ways of collecting information for analysis. Link the data collection terms below to their descriptions.

Term		Description
<i>Observation</i>	•	• Ask participants to answer questions, often online.
<i>Questionnaire/Survey</i>	•	• Phone people and ask them for opinions.
<i>Face-to-face interview</i>	•	• Watch what is happening and make notes.
<i>Telephone interview</i>	•	• Sit down and talk to individuals.
<i>Focus group</i>	•	• Information kept by a computer about its use.
<i>Blog responses</i>	•	• Create a page where users can air their views online.
<i>Facebook pages</i>	•	• Put together a group to discuss an area of concern.
<i>Log files</i>	•	• Post a piece of writing and allow responses from readers.
<i>Browser history</i>	•	• Observations or interviews conducted via online cameras.
Online webcams	•	• A detailed study of a single person or subject.
Case studies	•	• A record of all the internet pages viewed by the user.
Experiment	•	• Maintain records of financial transactions or other events.
Simulation	•	• Collect data about the whole population.
Census	•	• Use a model of a situation to observe behaviour.
Record keeping	•	• Make a change of some sort and observe the response.

Task 2 – Initial Beliefs

Look at the collection methods in italics from the last task. Think about whether the data collected through each of these is likely to be accurate or whether there might be ways in which human error or bias could influence the outcome. Place each method in one of the categories below. There are no right or wrong answers here – we are just exploring your initial thoughts.

- Should result in an accurate record of what happened: _____
- Should mostly result in some good, detailed notes: _____
- Probably will get reasonable responses, but not always very useful: _____
- Might see extreme opinions from people who are upset: _____



Task 3 – Trialling Collection Techniques in the Classroom

Split into four major groups and investigate one of the data collection techniques below. You may use the ideas given or develop your own. When all groups have completed the trial, give a short report back to the class about anything that has been learnt. You could discuss any of the points below:

1. What things seemed to work well?
2. What problems were encountered?
3. What are the likely strengths and weaknesses of this data collection technique?
4. How could the findings be presented?

If you have time, record the results in a spreadsheet and create a suitable chart to show the class.

Note: This is only intended to be a short investigation. We will be looking in more detail at specific aspects of data collection in future tasks.

Option 1 - Observation

Carry out some observations within your classroom. Your *subject of interest* should be something that you can count or measure such as how many people in the class are left-handed, how many people stand up over a 5-minute spell or how noise levels change over time. Each person in the group can observe something different, although you might come up with a way of gathering information about a set of related ideas. Keep it respectful; don't choose a subject that might be harmful or embarrassing to anyone in any way.

After the observations are complete, get together as a group and discuss the points above. If you have time, record your own results in a spreadsheet and create a short report of your findings.

Option 2 - Questionnaire

Each person in the group should put together a short questionnaire with 4 or 5 questions about a topic. It could be about the respondent's favourite food, what they think of public transport or their musical tastes etc. Think carefully about what you are trying to find out and design questions that result in useful data. You could use multiple choice questions or offer statements with the 'agree / no opinion / disagree / unsure' set of choices.

When you are ready, collect data from as many other people in your group as time allows. Make conclusions from this.

Note: You may read out the questions as an easy method of collecting data, but don't start a discussion (imagine the person is completing the questionnaire quietly on their own).



Option 3 - Face-to-Face Interview (needs an even number of students)

Interview one other person in your group about a subject. It could be about their favourite food, something that is big in the news, their tastes in music etc. Consider what you are trying to find out and how you could obtain good data from the interview. Think through how you might guide the discussion so that you cover the topics that you want to. Plan how you will record the information and what you will do with it afterwards.

When you are ready, partner up with someone else in your group and interview each other (one interview at a time).

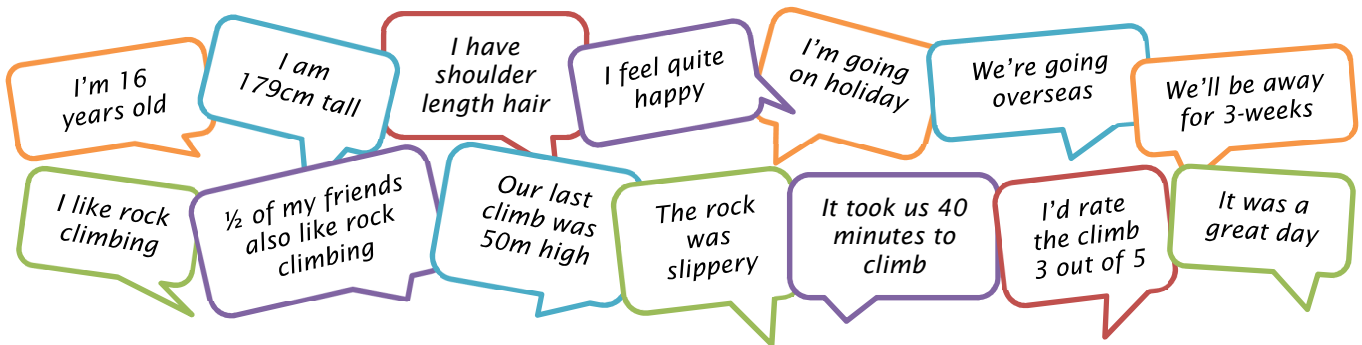


Quantitative data is information that can be measured and written down as numbers. Examples include your age and your shoe size. Other information is not quantitative, for example a description of how someone is feeling. A person might talk generally about the state of their health or what their day has been like. This is called *qualitative information*; it doesn't involve numbers. However, if we ask the person to suggest how happy they are feeling on a scale of 1 to 5, then we will obtain some quantitative data about their wellbeing.

Aim: To create an online survey for the collection and analysis of quantitative data.

Task 1 – Quantitative or Qualitative?

Say whether each of the examples below is quantitative or qualitative information. You may be uncertain of some.



Task 2 – Asking Quantitative Questions

It is possible to collect quantitative data about most things. For example, if you were to ask thirty people the question "How long is your hair" you would likely get a range of different answers ("long", "shaved at the back", "about 10cm", "number 1 all over" etc.). At times, this qualitative information might be useful, but making any conclusions from it would require analysing each response individually. If you had 3000 responses to analyse, this would be a long and difficult job.

Instead, it is more common to ask questions that have a set of possible answers to choose from. This quantitative data can then be analysed quickly using computers. Examples of questions that result in quantitative data include:

- How often do you cut your hair? 1 week 1 month 3 months 6 months 1 year+
- How long is your hair at the back? 0-2cm 2-5cm 5-10cm 10-20cm Over 20cm

Write quantitative questions that relate to all the statements in the last task. Give a set of possible answers for each. We have got you started with some ideas.

- How old are you? Under 15 15 years 16 years 17 years Over 17
- How tall are you? Below 150cm 150-160cm 160-170cm 170-180cm Over 180cm
- How happy are you? 1. Unhappy 2. Not great 3. A little happy 4. Pretty good 5. Excellent
- Will you go away on holiday? No holiday Within our country Overseas

Capturing Quantitative Data (page 2)



Task 3 – Question Types on SurveyMonkey

SurveyMonkey is an online survey tool that can be used to create free surveys for others to complete. Here is a link to a short survey about the music teenagers listen to whilst they are doing their homework.

<https://www.surveymonkey.com/r/BFCWMXN>

It's easy to set up a free account on SurveyMonkey. Follow the link from the homepage (<https://www.surveymonkey.com/>) and choose a username and password. No email validation was required at the time of writing.

- a. Set up an account and click on the *Create Survey* button.
- b. Click *Start from Scratch*.
- c. Name the survey "Test" and click *Create Survey*.
- d. Click on the question type box (where it says *Multiple Choice*) and have a look at the question types available.
- e. Try to work out which types of questions have been used in the examples on this page. You may create a few test questions if it helps (click *Next* in the top-right to test them, then *Continue editing* to return).

1. Type = _____

2. Type = _____

3. Type = _____

4. Type = _____

5. Type = _____



Task 4 – Conducting an Online Survey

Your task is to create a good quality survey and collect results online using SurveyMonkey. These are the steps we will use:

1. **Establish the aims of the survey.** *What exactly do you want to find out?*
2. **Determine your sample.** *Who will you ask to complete the survey? How many responses would you like?*
3. **Plan your survey.** *Plan your questions carefully. Be efficient and precise.*
4. **Create your survey.** *Go to the SurveyMonkey website and build your survey.*
5. **Test the questions.** *Try out the questions before you go live. Make sure they achieve your aims.*
6. **Invite participants.** *Ask others to complete your survey.*
7. **Analyse the data.** *Produce a report about your findings.*

Work through the steps below. Make notes about each step.

1. Establish the aims of the survey

Think carefully about what you want to find out. Try and boil this down to one main aim if you can. It could be like one of the examples below, or you can think of your own idea that is of more interest to you:

- Attitudes to homework or when the school day should begin and end;
- The organisation of events for a sport or hobby;
- Whether social networking is a good thing;
- Opinions about something that has been in the news;
- The quality of programmes on television or the internet;
- Whether people are interested in a certain product or service;
- *Anything else that you are interested in researching.*



Try not to be too general in your aim. The more specific you are, the more likely you are to find out something useful and have confidence in your results.

2. Determine your sample

Decide who you are going to ask to complete the survey. It could be:

- People in your year at school;
- Members of a team, club or society;
- Males or females;
- Younger people, parents or grandparents.



There is no point in asking people to complete your survey unless the questions are relevant to them, so pick your target group carefully. You should also consider how many responses you need in order to obtain good information from the survey. Remember that the respondents will need internet access, computer skills and be able to understand your questions.

Finally, you may want to consider bias. If you ask 10 people who you know dislike school what their opinions about homework are, then you'll probably learn that 10 people don't like homework. Try to make choices that will give you new information about the subject you're interested in.



Data collection is big business. Some of the largest internet companies in the world rely on the collection of huge amounts of personal data to make money. Other entities such as schools and doctors' surgeries collect personal information because this can help with your health and welfare. Whatever the reason for collecting the data, there are laws concerning its storage, use and disposal.

Aim: To consider the responsibilities of those who collect and use data.

Task 1 – Who Knows What?

The boxes below show a set of personal details that might be known by four entities that collect data. They could be pieces of information that you have knowingly submitted in a form or they might be picked up from your activities online.

Your task is to decide which bits of information are likely to be known by your school, your doctor, Facebook and Google. Use ticks, crosses and blanks as shown below:

School
Doctor
Facebook
Google

S	✓
D	✗
F	
G	

Tick if you believe they have this information about you.

Cross if you don't think they have obtained this information but would like to.

Leave blank if you don't think they try and collect this information.

Remember that Facebook has access to the posts and likes of its users. It can interpret text, knows who your friends are and can recognise people in your pictures. Google tracks the websites you visit and, if you use Gmail, reads the contents of your email messages. There is plenty of information online to help you, for example:

<https://www.theguardian.com/commentisfree/2018/mar/28/all-the-data-facebook-google-has-on-you-privacy>

Your name	S		Your birthday	S		Your age	S		Your gender	S		Your email address	S	
	D			D			D			D			D	
	F			F			F			F			F	
	G			G			G			G			G	
Your home address	S		Your phone number	S		Your education level and school	S		The state of your health	S		Your relationships	S	
	D			D			D			D			D	
	F			F			F			F			F	
	G			G			G			G			G	
Your hobbies and interests	S		Your taste in music	S		Your current location	S		The places you've visited	S		Events you have attended	S	
	D			D			D			D			D	
	F			F			F			F			F	
	G			G			G			G			G	
Your contact lists	S		The messages you've sent and received	S		The websites you visit	S		Your search history	S		The photos you've shared	S	
	D			D			D			D			D	
	F			F			F			F			F	
	G			G			G			G			G	
Your tech devices	S		The things you buy online	S		Your religion (if you have one)	S		Your political beliefs	S		The shows you watch online	S	
	D			D			D			D			D	
	F			F			F			F			F	
	G			G			G			G			G	



In an earlier task, we collected data from an online survey using the SurveyMonkey website. We'll now look at how things might work behind the scenes on a webpage designed to collect data. This will involve a very gentle introduction to the coding that runs the web. We'll investigate how some of the elements such as checkboxes and option buttons work and how the data entered into a textbox might be validated. You can take this project as far as you want; it is completely open-ended.

Aim: To learn a little about HTML and design a short survey to place in a webpage.

Task 1 – Introduction to HTML

HTML stands for HyperText Markup Language. This is the language that instructs your device how to construct a webpage so that it can be viewed in your browser.

HTML makes use of tags. These tags might tell the web browser when to start formatting in a certain style and then when to stop using that style. For example, to produce the strong, emphasised text '***This is HTML***' on your page, you could use the code in the first column below:

HTML Code	Tag name	Instruction to browser
<code></code>	Strong	- start using strong, or important, type (it appears as bold)
<code></code>	Emphasised	- start using emphasised type (it appears as italics)
This is HTML		- write the text
<code></code>	Slash-emphasised	- stop using emphasised type
<code></code>	Slash-strong	- stop using strong type

The tags are the things in brackets. `` is the tag that instructs the web browser to use strong text. `` is the tag that tells it to stop using emphasised text. The code for this text may all be written on one line; it makes no difference.

```
<strong><em>This is HTML</em></strong>
```

A Note about Tags

Tags should not be interlaced. The layout for the 2 tags above is: Open 1, Open 2, Close 2, Close 1.

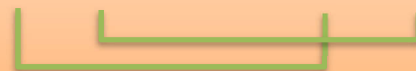
This is Correct

```
<strong><em>This is HTML</em></strong>
```



This is Incorrect

```
<strong><em>This is HTML</strong></em>
```



Some points about HTML

1. HTML can be written in *UPPER* or *lower*-case text (or a mixture). Generally, lower case is preferred.
2. Web browsers will ignore tags that they do not understand.
3. HTML is not a programming language. Mistakes will not cause your computer to crash – they will just cause the page to be displayed incorrectly in a browser.



Task 2 – Saving and Sharing your HTML

The w3schools editor is very basic. This is a great help when we are trying to get started with HTML but it is not very good when it comes to saving your work. Here are some options:

1. Click on the **Save icon** (or click on the menu icon and *Save Code*)

When you click on the *Save* button, you will be shown a URL (web address). Copy this web address and paste it somewhere safe; you can use it to retrieve your code later.

Your Code has Been Saved

File has been saved to: <https://www.w3schools.com/code/tryit.asp?filename=FT6S14HS51XE>

If you like, you can forward this URL to others so that they can view your script or further develop it (although they cannot change the original saved version).

The Problem: *The issue with this method is that a new URL is created each time you save your work. You need to copy each new URL so that you can continue your work later. It is fairly easy to lose work.*

2. Save to Google Drive (best solution for solo work)

Click the menu icon and select *Save to Google Drive*. You will need a Google account to continue. Once saved, you can open another browser window and navigate to your *Drive* account. You may then share the file if you like and retrieve it from inside the editor using '**Menu / Load from Google Drive**'.

Google will ask you to confirm Google Drive access.

Save file as:

Version 1.0

<https://drive.google.com/drive/my-drive>

The Problem: *The issue with this method is that a new file is created each time you save your work, even if you give it the same name as another file. This is fine if you are working alone (you can just clean up later) but it makes collaborating difficult. If you do use this method, create a naming system such as V1.0, V1.1, V1.2 etc. so that you know which file is the latest.*

3. Copy the Code to an Online Document (easiest method of collaborating online)

Perhaps the best method for collaborating on your project is to copy the HTML from the editor ('Ctrl+A', or 'Cmd + A' on a Mac) and paste it into a blank document.

The document could be created in *Google Docs* or *Microsoft Office Online* and shared with your collaborators. When you share, remember to set editing rights so that your partners can also save the file.

When you are ready to begin working again, copy the HTML back into the w3schools editor.

The Problem: *The issue with this method is that it is difficult for different people to work on the page at the same time. If you do want to work together simultaneously, you are best off sitting at a single computer and discussing the changes you will make. If working at different times, you can pick up the document saved by your partner and develop this before copying your finished version back to the shared doc.*

Share with others

Link sharing on [Learn more](#)

Anyone with the link can edit ▾

OFF - only specific people can access

✓ Anyone with the link can edit

Anyone with the link can comment

Anyone with the link can view



JavaScript makes things happen on a web page. It has a wide range of uses, including:

- displaying different text depending on user actions;
- swapping one image for another when you roll your mouse over it;
- performing calculations and displaying the results;
- validating data entered into a form before it is passed on.

Aim: To use JavaScript to validate form entries on a webpage.

We will be using JavaScript for the last of these – validating the data entered into a form.

Where is the JavaScript?

JavaScript can be found in all sorts of places. It is common to place JavaScript (and CSS) in separate files that are delivered to the browser along with the webpage. We will be adding it to the head section of our code so that we can see what is happening.

This JavaScript below is executed when the user clicks a button on the webpage.

JavaScript in the Head Section

```

<!DOCTYPE html>
<html>
<head>
<title>JavaScript</title>

<script>
  function checkForm() {
    document.getElementById("Output").innerHTML = "Output text";
  }
</script>

</head>
<body>

<h1>This is a Heading</h1>

<input type="button" value="Submit" onClick="checkForm()">
<p id="Output"></p>

</body>
</html>

```

Open HTML script tag →

JavaScript function →

Close HTML script tag →

The JavaScript function runs when a button on the page is clicked (don't worry about how all this works for the moment) →

Some points about JavaScript

1. JavaScript is a true programming language. Mistakes can cause errors in a webpage, although modern browsers tend to ignore bad code.
2. JavaScript can be executed at different times e.g. when the page is first displayed, when a button is clicked, when the mouse is placed over an object or when a form is submitted.
3. The JavaScript interpreter (reader) in your browser ignores spaces and line breaks. You could write long, complicated scripts on a single line but they would be very difficult to read and understand for the human programmer.



Task 1 – Trying some JavaScript

- Save any code that you have been working on so that it's not lost. Open a new browser tab, return to the *TryIt* start page (<https://www.w3schools.com/tryit/>) and create a new webpage.
- Set up the code shown on the last page. You will need to be very careful typing the JavaScript – it must be copied accurately. JavaScript is case sensitive, so upper and lower-case letters have to be used correctly. For example, the method 'getElementById' will work whereas 'getElementByID' will not (notice the uppercase 'D' at the end).
- Run the page and click the button. The words 'Output text' should appear below the button. If it doesn't, double check your code to make sure that everything is copied correctly. When you have the code working, save the page.



Task 2 – How Does the JavaScript Work?

Copy each statement below into the most suitable box.

- Place scripts in the Head section of the HTML.
- Add a JavaScript function named 'checkForm'. Don't forget the squiggly brackets.
- Display a button on the webpage.
- Create an empty paragraph with the ID 'Output'.
- When the button is clicked, look for the function called 'checkForm'.
- Run the checkForm function.
- The function looks for the element with the ID 'Output'.
- When it has found the element, it changes the HTML contained within.
- The HTML is changed to the words "Output text".
- The words 'Output text' are displayed in the empty paragraph.

```
<!DOCTYPE html>
<html>
<head>
<title>JavaScript</title>
<script>
function checkForm() {
document.getElementById("Output").innerHTML = "Output text";
}
</script>
</head>
<body>
<h1>This is a Heading</h1>
<input type="button" value="Submit" onClick="checkForm()">
<p id="Output"></p>
</body>
</html>
```

The diagram shows the HTML code from the previous task. Several boxes are placed around the code with arrows pointing to specific parts:

- A box points to the `<script>` tag in the head section.
- A box points to the function definition `function checkForm() {`.
- A box points to the function body `document.getElementById("Output").innerHTML = "Output text";`.
- A box points to the closing `</script>` tag.
- A box points to the `onClick="checkForm()"` attribute in the button tag.
- A box points to the `id="Output"` attribute in the paragraph tag.
- A box points to the `<p id="Output"></p>` line.