Putteridge
High
School

# Extended Learning
# Computer Science
# Years 7 & 8

Putteridge High School

# Computer Science

# Year 7 - Autumn Term

Putteridge High School

# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 7**

**Term: Autumn 1**

**Topic: Be Smart**

**Learning Objectives**

- Keeping safe online
- Keeping safe using mobiles technologies
- Preventing cyber bullying

**Extended Learning Opportunities**

- View use of social media sites with your parent or carer. Are you old enough?
- Look through this web site to help you with the next three tasks.
  - Discuss 3 key tips for online safety with your parent or carer.
  - Discuss 3 key tips for keeping safe using mobiles technologies with your parent or carer.
  - Discuss 3 key tips for preventing cyber bullying with your parent or carer.
- Have a go at this quiz. It's your chance to show that you know how to be a safe Internet surfer.

Putteridge High School

# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 7**

**Term: Autumn 2**

**Topic: Murder Most Horrid**

**Learning Objectives**

- Understand how to create an ID badge based on a previous design.
- Understand the difference between information and data.
- Identify if information is biased or incorrect
- Understand the role the internet plays in perpetuating incorrect information.
- Understand and create an algorithm.
- Understand what a database is.
- Identify examples of databases in real life.
- Understand how to use a database for a given reason.

**Extended Learning Opportunities**

- Find out more about algorithms here.
- Research Police ID badges. You could start here.
- Find out about databases here
- Visit Bletchley Park and find out about how algorithms won the second world war!
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!

Putteridge High School

# Computer Science

# Year 7 - Spring Term

Putteridge High School

# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 7**

**Term: Spring 1**

**Topic: Grow IT**

**Learning Objectives**

- Understand why computers are used to control processes.
- Understand the advantages and disadvantages of computer control.
- Understand inputs and outputs in computer systems and be able to identify them.
- Know how to create and explain flowcharts independently.
- Understand about spreadsheets and why they are needed.
- Improve the basic spreadsheet to add formulas etc.

**Extended Learning Opportunities**

- Visit The Jaguar Car plant and watch an automated factory at work.
- Visit the Bank of England to find out about money (spreadsheets and accounting)
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!

Putteridge High School

# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 7**

**Term: Spring 2**

**Topic: A quiz from Scratch**

**Learning Objectives**

- Use an object based text language.
- Understand the following coding constructs; sequence, iteration and selection.
- Solve a variety of computational problems.
- Test and revise a piece of code

**Extended Learning Opportunities**

- Explore and create a Scratch account.
- Complete some Hour of Code challenges.
- Attempt some advanced scratch programming. Try this fidget spinner challenge here.
- Explore some alternatives to Scratch here.
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!

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# Computer Science

# Year 7 - Summer Term

Putteridge High School

# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 7**

**Term: Summer 1**

**Topic: Under The Hood**

**Learning Objectives**

- Understand and identify the different parts of a computer.
- Understand and identify several input and output devices.
- Understand and identify storage media and it purpose.

**Extended Learning Opportunities**

- Use google to find numerous videos which explain the working for computers.
- Use Khan Academy to learn more.
- Go to this web page and then summarise your learning in a tweet. Template here.
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!

Putteridge High School

# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 7**

**Term: Summer 1**

**Topic: Let's Get Logical**

**Learning Objectives**

- Understand Boolean Logic and its place in computing
- Understand the correct input and output gates to complete circuits for NOT, AND and OR.
- Use the correct input and output gates to complete circuits for NOT, AND and OR.

**Extended Learning Opportunities**

- Play with logic gates and make your own circuit, here.
- Research George Boole and write a front page news article about him.
- Visit Bletchley Park and find out about the very first computers.
- Make your own battery powered on/off circulty at home. Watch this if you need to.
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!

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# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 7**

**Term: Summer 2**

**Topic: Turtle Trouble**

**Learning Objectives**

- Understand the basics of Python Turtle.
- Understand how to create repeating patterns.
- Understand how to use functions in programming.
- Understand and use IF statements.

**Extended Learning Opportunities**

- Download Python for free here.
- Watch this tutorial.
- Complete this challenge.
- Find and complete some more challenges on your own. Come and show us what you did!
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!

Putteridge High School

# Computer Science

## Year 8 – Extended learning opportunities

## Autumn Term

Putteridge High School

# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 8**

**Term: Autumn 1**

**Topic: Be Smarter**

**Learning Objectives**

- Builds on Year 7 unit
- Keeping safe online
- Keeping safe using mobiles technologies
- Preventing cyber bullying

**Extended Learning Opportunities**

- View use of social media sites with your parent or carer. Are you old enough?
- Look through this web site to help you with the next three tasks.
  - Discuss 3 key tips for online safety with your parent or carer.
  - Discuss 3 key tips for Keeping safe using mobiles technologies with your parent or carer.
  - Discuss 3 key tips for Preventing cyber bullying with your parent or carer.
- Have a go at this quiz. It's your chance to show that you know how to be a safe Internet surfer.

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# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 8**

**Term: Autumn 1**

**Topic: Micro:Bit Challenges**

**Learning Objectives**

- Understand and apply the fundamental principles and concepts of computer science, including algorithms. To include:
- Be able to use a Micro:Bit safely.
- Complete several different level programming challenges using a Micro:Bit.

**Extended Learning Opportunities**

- Purchase a Micro:Bit to use at home.
- Explore the Micro:Bit site
- More projects to inspire you to keep coding!
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!

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# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 8**

**Term: Autumn 2**

**Topic: Game On! (Kodu)**

**Learning Objectives**

- Understand the use of a sequence of instructions to control events.
- Devise and refine sequences of instructions.
- Create precise and accurate sequences of instructions.
- Create efficient sequences of instructions including the use of subroutine
- Use ICT-based models or simulations to answer questions.
- Use models to explore relationships between inputs and outputs and explain how the models work.
- Change variables within models and explain the impact.

**Extended Learning Opportunities**

- Use your school login to sign up for an online kodu account.
- Make your first kodu game with help here.
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!

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# Computer Science

# Year 8 – Spring Term

Putteridge High School

# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 8**

**Term: Spring 1**

**Topic: Python Magic**

**Learning Objectives**

- Understand and use the correct syntax in Python.
- Understand and use the selection programming construct correctly in Python.
- Understand and use the iteration (loop) programming construct correctly in Python.
- Understand and use arrays in Python.
- Understand and use functions in Python.

**Extended Learning Opportunities**

- Complete an hour of code.
- Complete a Python MOOC. There are plenty to choose from online. Here's one example.
- Play Codecombat here and learn how to code!
- Complete five mini beginner programming for Python here.
- Download Pygame from here and have some fun!
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!

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# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 8**

**Term: Spring 2**

**Topic: Animate**

**Learning** Objectives

- Understand and use the system life system.
- Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals
- Create, reuse, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability
- Understand the importance of research and analysis before designing a product.
- Produce a storyboard design for an animated product.
- Create an animated project which follows a design brief.
- Test and revise an animated product.
- Review and evaluate an animated product.

**Extended Learning Opportunities**

- Create a powtoons account and have some fun.
- Teach yourself and create an amazing 2D or 3D animation with a free program here.
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!

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# Computer Science

# Year 8 – Summer Term

Putteridge High School

# Extended Learning Opportunities

**Subject: Computer Science**

**Year: Year 8**

**Term: Summer 1**

**Topic: I'm a Celebrity**

**Learning Objectives**

- Understand how fields and records are used in order to create a database.
- Understand how boolean operators are used to search a database.
- Understand and use the correct database terms eg field, record, table, data types etc.
- Understand how to link tables together using primary and foreign keys.
- Understand how to search, sort and extract information from a database.

**Extended Learning Opportunities**

- Research "Big data" jobs and write an application.
- Have a look at 10 "cool" big data projects here.
- Look at the extended learning tasty computing takeaway menus and choose the dishes you want to get your teeth into!