Teaching Computing with Poems and Riddles

KS3

Miss A Tough

Computer Science- For ages 11+

Introduction

A short collection of poems which aims to assist students learn some key computing content- for KS3 content and to prepare for KS4.

I do not recommend trying to commit the poems to memory per se but using them as a platform to check current learning is advised. Annotating the poems and adding examples etc. will hopefully further deepen this understanding.

Online versions with additional content (including more common misconceptions and general computing concepts) can also be found on computingpoetry.weebly.com.

Information has been adapted from free sites online including but not limited to BBC Bitesize, YouTube and exam specification pages.

If you would like to know how I use these with my students, please don't hesitate to contact me – see About Me Page.

Good luck and Happy reading!

Contents

Introducing Computer Components – HIPPOS

Hippos is how we remember the components of our PC
It really is that easy- just read on and see!

H is for hardware the things that are physical
I is for input devices, entering things so they're digital
P is for primary memory - r starts our main two
P is for the processor - also known as the CPU
O- is for output so that we can hear and see
S is for secondary storage; our files are not just temporary!

Software of course is needed too;
Our programs and apps give us so much to do!

Questions:

- What animal helps us remember the main components?
- What do each of the letters stand for?
- H is for hardware- the things that are physical. List three pieces of hardware.
- Look at line 6 - what is a synonym (another word) for processor.

Challenge:

- For your chosen hardware, can you name whether they're input or output?
- P is for primary memory – r starts our main two. What are the main types of primary memory?
- Can you make a mind map or other creative project to summarise what you have learnt?

1.Riddle 1

I complete a cycle: fetch, decode, execute

I'm vital for your device to compute

I perform the arithmetic and logic,

To a brain I am analogic

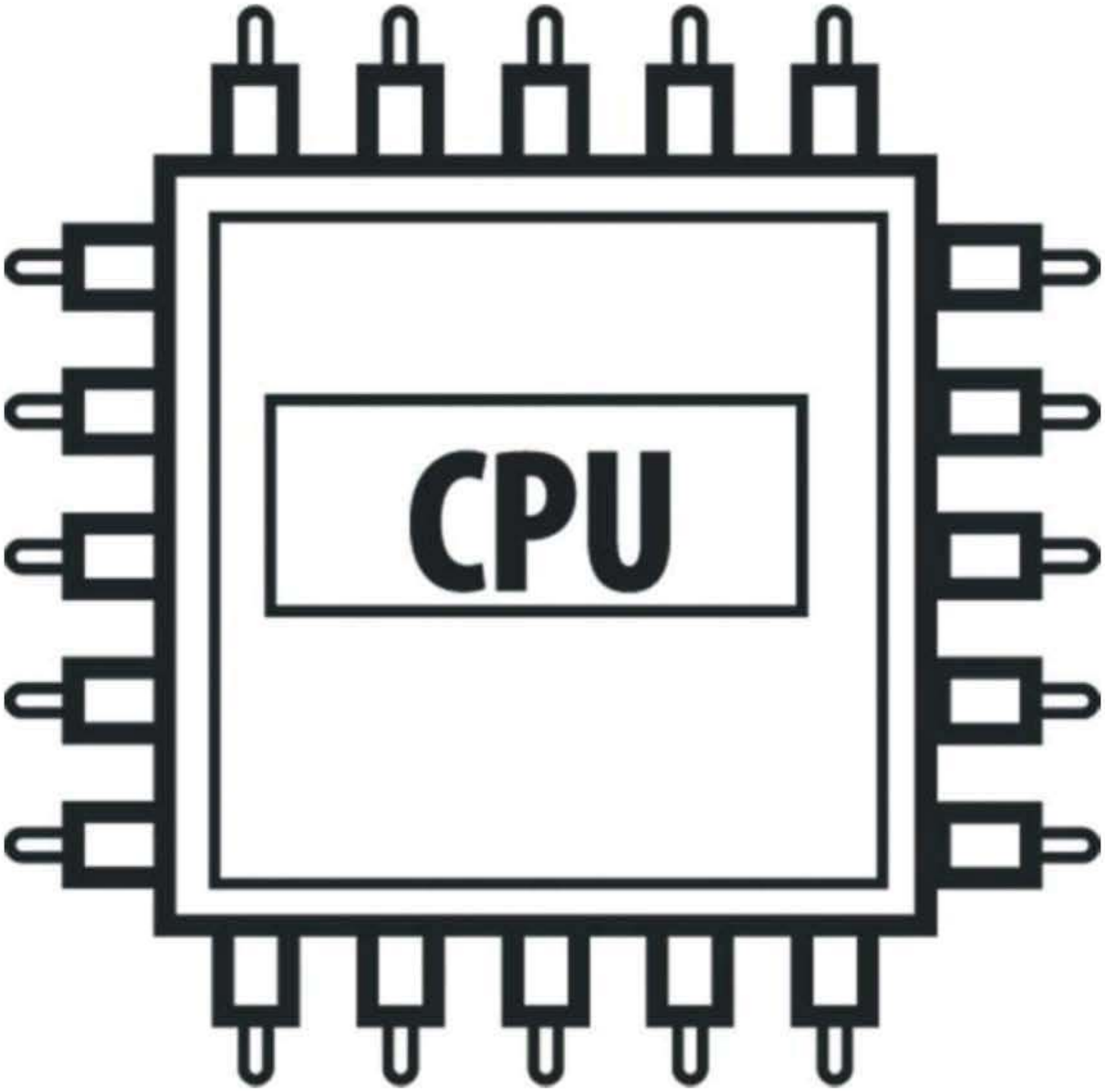
I control operations, which are specified by instructions

1955 is when I got my name,

But calling me a processor means just the same

There are no more clues for you

I'm very clearly the ….



Colour me in!

What else can you find out about me?

General Purpose and Embedded Systems

An embedded system generally has one role,
But a general-purpose computer has no specific goal
The examples are our desktop and laptop
Whereas to list all of embedded - we'd never stop
The components of hippos are what they require
Which includes your fridge, oven and your dryer

It's got a dedicated function in a system that's larger,
And they require less power, so you won't keep needing your charger
Designing and building is cheaper to do
And typically, the ram is smaller too!

So to recap- the general-purpose system is the traditional PC,
Now the differences between them [and embedded] you can hopefully see!

Questions:

- What are the two types of computers?
- Can you give an example of each?
- How many embedded systems are mentioned?

Challenge:

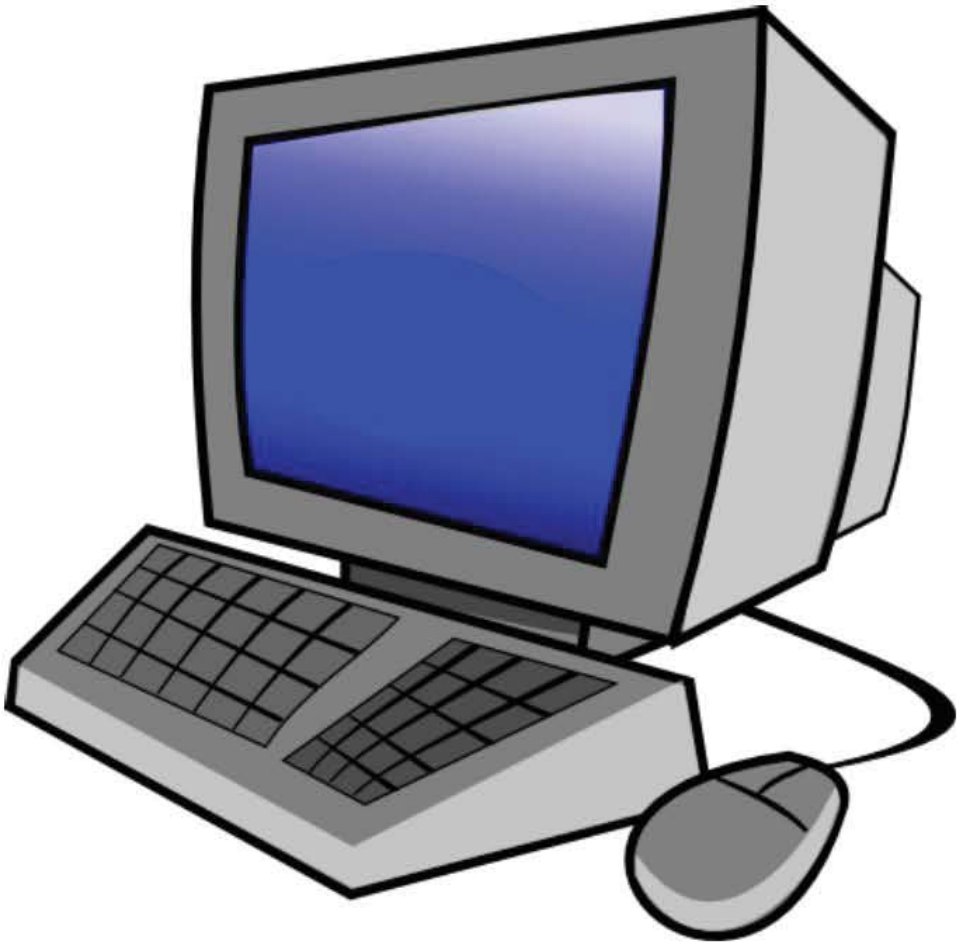
- In the penultimate (second to last) paragraph Ram is mentioned. What is Ram?
- What does 'dedicated function' mean?
- Explain the differences between an embedded system and a general purpose.

2.Riddle 2

I'm not a device to embed
Guessing me shouldn't lead to a scratch of your head
I've got many uses, not just one
On me lots of things can be done
I can watch videos, do work and surf the net
Sometimes viruses I can also get
A general purpose system I must be,
Not a laptop, so you see
I am of course a …

3.Riddle 3

When you're not very hungry you may do me
I'm a number, one more than three
I'm half a byte,
You can get this right
We won't need to quibble
If you tell me I'm a …..



Desktop PC

Can you find out any more facts about me?

Nibble

_is the answer for number 3.

You can read more about measurements on the next page- yippee!

2.Kangaroo Measurements

Happy kangaroos make goo
And Bad kangaroos do too

Why do we remember this phrase?
Well, it's one of our quirky ways
For our order of measures to be recalled
So we won't have a grade that leaves us appalled!

For hertz we remember our happy kangaroos
For bytes it's the bad ones making goo too
That gives us the order: kilo, mega, giga
Plus terra if we need our storage even bigger!
This of course goes from small to big,
Remembering them really isn't a hard gig.
For conversions you won't really need to learn much more
Other than to go up each by one thousand and twenty four (1024)

Questions:

- What is the saying to help us remember the order?
- Name the measurements from smallest to largest.
- Look at the last line our conversion between the units is 1000 bits or …?

Challenge:

- How many bytes are in two MB?
- A nibble is four bits, can you find out what we call two nibbles?
- What does bit stand for?

Malware

Malware means malicious software,
Causing harm to our devices whilst we're blissfully unaware
A virus causes disruption and often damage too
It also replicates and tries to find another device to pass through
A human must do something for the virus to open and infect
downloading email attachments and software could easily cause a defect
A worm whilst similar does not need human action to spread
Just connecting to a device that has a worm is enough for it to move ahead
A Trojan is perhaps the most sly
Pretending to be a gift (just like the trojan horse myth) or acts an ally
You won't expect the damage to be done,
Because it disguises itself as something good or fun.

Spyware does the harm the device in the same way,
It's you that's at the risk when you work or play
e.g. Keyloggers and browser hijackers will record your personal data
and pass them on the be used by the spyware creator
Ransomware is the last malware for us to go through
It is basically hackers blackmailing you
They block access or make files so that it cannot be read
They really can cause a lot of dread
WannaCry is a famous example which targeted the NHS
This caused worldwide damage, a loss of millions/billons, and a whole lot of stress!

Questions:

- What does malware mean?
- Provide some examples of malware.
- A virus replicates. What does replicate mean?
- Malware can slow your computer down. What other effects can they have?

Challenge:

- Define a hacker? Can you name the types?
- Why dos the trojan have its name?
- What is WannaCry an example of? Can you find another example?

Signs of a phishing email

There are certain signs of phishing emails for which you should be aware

When sending out communication professional companies will take a lot of care

So SPAG : spelling, punctuation and grammar should be correct,

And non-personalised greetings are also a little suspect

Also check for the sender's name

And that the link and the destined address are the same

A sense of urgency should also raise distrust

If you feel doubt, ringing the company is an absolute must!

Phishers try get recipients to click on the link to enter their personal details

but knowing these signs will help cause their attempts of theft to fail

Questions:

- SPAG must be correct. What does SPAG stand for?
- What are the signs of a phishing email?
- What do you think you should do if you receive a phishing email?

Challenge:

- Phishers pretend to be from a legitimate company. What does this mean? Provide an example?
- Why might a sense of urgency cause mistrust?
- Can you find any real-life examples of phishing attacks?

E-Safety

When we're online we need to be kind
There won't be a chance for us to rewind
When we post it's there forever,
So please make sure that you're clever

Do not post anything you won't want others to see
Everyone's a witness: friends, strangers and family
Think of social media as a personal stage
The things you do matter, no matter your age!

Look at Jesy Nelson and the odd one out
Who explores what trolling is all about
Social media can have a huge cost
So many lives are needlessly lost

For words can hurt and go a long way
So be very careful with what you choose to say
Your actions and words can be evidence in years ahead
You don't want to hit any barriers because of what you once said

Paris brown learnt an unfortunate lesson as a teen
With what can happen when all your tweets can be seen
Her story caused quite a stir
With many having lots to say about her

So really consider what you post - particularly when you're bored
Because you don't want to be trolled or a victim of fraud
Think about what you view and do
And remember you never really know who you're talking to
Your personal details are not something you should share
You really must take a lot of care
The internet can be great and really beneficial to use
But also very risky and dangerous if abused.

Questions:

- What is E-Safety?
- When we delete a picture from online, it'll remove from devices forever. True or False? Can you explain why?
- What are some examples of social media?
- What does trolling mean?

Challenge:

- You could be a victim of fraud. Describe fraud.
- Jesy Nelson? Paris Brown? Why are they relevant here?
- The internet does more harm than good. Evaluate this view.
- What tips would you give someone to be safe online?

4.Riddle 4

I am nasty, I am mean
I am relentless, I am keen
I cause upset, I do harass
And my comments can be quite crass
I will pop up on your videos and posts
From me you will hear from the most
You should report me to make me stop
Some say I live under a bridge not on top
But I live online and I commit a crime
When I act it's important someone is told, for I can take my toll; after all I am an internet

5.Riddle 5

Remember you should always talk to someone about how you feel
As others can help you with how to cope and deal
Sometimes you might just need to be listened to
Especially on days when you're feeling blue
Or you might find yourself at a time
Where you need to report a crime
So this is somewhere where you can go
Especially if you don't want others to know
You can give these people a call
And in confidence you can tell them all
In emergencies you should still call 999
But if you just need support and someone to listen, you could call...

Troll

Glossary for uses online

E-safety- making sure when you're online you take care
Personal details- information you don't want to share

Chat room- virtual rooms where talk to people you don't know
Please don't use these, the dangers can be found below!
Grooming, abuse, trolling, bribing to name just a few
Talking to strangers is something you should not do!

Catfish- pretending to be someone you're not
Viral videos- enough views that everyone thinks 'wow that's a lot'

Cyber bully- bullying someone online using technology
Troll- leaving nasty comments without apology

Click bait- offering enticement to tempt you to click
Ghosting- ignoring someone until they've picked up on your trick
Once they've clued up to the act
They'll stop making contact
Of course it's kinder to explain and say bye
Instead of leaving people thinking why

Creeping- where you follow someone so closely-it's like you obsess
Filtering- limiting and restriction what you can access

Block- stopping someone from seeing what you do
Report- report concerns to protect others too

CEOP- a place for online protection and advice
Teachers, parents, friends - people to confide in when others aren't being nice

Https- means the site you're on is secure
Http- is your data safe? Well you can't be sure...

Please be aware of the dangers online and keep yourself protected
Be wary too if your computer becoming infected

If data becomes corrupt or your device runs slower
You could have malware or an unwanted follower
Hackers get in to your device when they have no right
Well unless their colour hat is white

And **malware** is bad software meant to harm
If you suspect you have this: remain calm!
Read the poems to find out what to do
Or take it to professional- they'll help make your device like new

Technology can be really helpful in what you do-
But there's lots of dangers present too
yes I know technology can really be great!
But be aware of the risks- before it's too late!

Questions:

- What is a catfish? Why might someone catfish?
- We should block and report trolls and cyberbullies. Why?
- Explain what is meant by a viral video. Can you think of any examples?
- Who can we report E-Safety concerns to?

Challenge:

- What's the difference between HTTP and HTTPS?
- The legal hacker has what colour hat? What do you think we call illegal hackers? What is the difference between them?
- Create a creative project: flashcards, mindmap etc. on the key words.

A note of thanks…

Thank you for taking the time to give this a read,

I hope they've given you some information that you need

Or at least provided a good start

Especially if you've learnt them off by heart!

I do hope they have helped with your computing knowledge - I really do

And I wish lots and lots of success to come to you!

Inspired work

Use this space if you would like to add some illustrations / diagrams with for what you have learnt. Perhaps you want to write your answers here or even give your own riddles/poems a go…?