

UA Gateway Unit Planning Guide

Individual Lesson Plans

Teacher: Tymond Tran Course: Design and Technology 1 School Year: 2011-2012

Unit:	Lesson:
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Learning Goals:

- 1. I can identify the different units of measurements used to calculate computer speeds.
- 2. I can calculate different speeds of computer devices.

Resources for Lesson

http://en.wikipedia.org/wiki/Front-side_bus
<http://en.wikipedia.org/wiki/Terabyte>
http://www.youtube.com/watch?v=p_6fUYa3PMk - POSSIBLE VIDEO

Vocabulary:

Megahertz, Gigahertz, Gigabytes, Megabytes, Terabytes, Front Side Bus, Multiplier, Cache

Starter* (Building on Background Knowledge):

1,000,000 Hz = 1 MHz
1000 MHz = 1 GHz
1024MB = 1GB
1024 GB = 1TB

Using the above following formulas as a guide, calculate the following:

- 1) 2.2 GHz is equal to _____ MHz
- 2) 2,500,0000 Hzis equal to _____ MHz
- 3) 2TB is equal to _____ MB
- 4) 4096MB is equal to _____ GB
- 5) 2.5GB is equal to _____ MB

* Indicates a formative assessment.

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Motivation: The problems we just worked on required you to calculate what types of measurements?

Ans: Computer speeds and memory etc.

In front of the room are several computers and laptops. I am going to ask us to take a poll on which machine we think is the fastest, but before doing that, I want us to think about why it is that we think a particular machine is actually the fastest, and how it is that we can validate our guess.

Ask: Which machine do you think is the fastest? Why? Raise your hand to cast your vote.

Students vote and are asked to explain why.

Ask: Following this activity, what do you think today's AIM and Goals maybe?

AIM: How do we calculate the speed of a computer?

Mini-Lesson ("I do"):

Teacher presents slides explaining the different measurements. MHz, GHz, Front Side Bus, Multipliers, and Cache then present students with handouts on calculating speeds.

Slide Topics?

- 1) What does MHz stand for?
MEGAHERTZ (ELABORATE)
- 2) What does GHz stand for?
GIGAHERTZ (ELABORATE)
- 3) What is Front Side Bus?
http://en.wikipedia.org/wiki/Front-side_bus
- 4) What are the computer's Processor? How is its speed determined?
The [frequency](#) at which a processor (CPU) operates is determined by applying a clock multiplier to the front-side bus (FSB) speed in some cases. For example, a processor running a 3200 [MHz](#) might be using a 400 MHz FSB. This means there is an internal [clock multiplier](#) setting (also called bus/core ratio) of 8. That is, the CPU is set to run at 8 times the frequency of the front-side bus: $400 \text{ MHz} \times 8 = 3200 \text{ MHz}$. By varying either the FSB or the multiplier, different CPU speeds can be achieved.
- 5) What is Cache?
Temporary Storage that allows data to travel between the Processor and RAM.
http://en.wikipedia.org/wiki/CPU_cache
- 6) The speed of a computer however is determined by a combination of the following
By a combination of the speed of the Processor, the Size of the Hard Drive, and the amount of RAM combined.

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Guided Practice (“We do”):

Teacher models calculating processor speeds.
 $400\text{ MHz} \times 8 = 3200\text{ MHz}$ (3.2MHZ)

Independent Practice (“You do”):

Students complete activity individually. Calculate the following / find the multiplier.

600 MHz x 6 = _____
2GHZ x 2 _____
_____ x _____ = 4400 MHz
_____ x _____ = 3GHz
3.4 GHz is equal to _____ MHz
1,500,0000 Hzis equal to _____ MHz
1TB is equal to _____ MB
3072MB is equal to _____ GB
1.5GB is equal to _____ MB

(IF TIME PERMITS INFORM STUDENTS TO LOOK UP SPEEDS OF THEIR OWN COMPUTERS AND RECORD IT)

Share/Summary:

What are the different units used in measuring computer hardware?
MHz, GHz, MB, TB, Hz etc.
How do we measure the speed of a computers processor?
FSB x Multiplier (Frequency of FSB)
How do we determine the speed of an overall computer processor?

Exit Task*:

Students make corrections, and fill in any missing information before submitting.

Homework:

Look up the speed of your computer at home or here at school and write it down.

* Indicates a formative assessment.