Crash Course Computer Science #5: How Computers Calculate – The ALU

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| Name: |  | Date: |  |

# Instructions

Watch *Crash Course Computer Science #5: How Computers Calculate – The ALU* on YouTube first. Then answer the following questions. Try to answer the question without looking at the video, but re-watch the video or parts of it if you cannot remember the answer.

1. What does “ALU” stand for?

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1. What was the most famous, and one of the first, in-chip ALUs?
   1. The AMD 486
   2. The Intel 74181
   3. The Macintosh II Plus
   4. The SGI 75699
2. What 2 logic gates can we use to build a half adder?

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1. What are the outputs of a half adder?

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1. How many bits can a half adder add?

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1. How much wood could a woodchuck chuck if a woodchuck could chuck wood?

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1. What do you get when you put a half adder and another half adder together?

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1. How do you make adders that add larger and larger binary numbers?
   1. Make them more green
   2. Make them simpler
   3. Continue to cascade carry bits to the next half adder in the line for as many bits as you want to add.
   4. Put the carry bits in a register for use later in the math
2. What do they call an adder that can add 8-bit numbers by pushing along the carry bits?

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1. Draw the symbol engineers developed to represent an ALU:
2. How do you tell an ALU what operation you want it to do?

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1. What are the “extra” outputs from an ALU called?

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1. What are the extra outputs *for*?

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