Student Name: Date:
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#### **Activity 1 - Binary Code**

Use the binary alphabet code to write your name in *binary code*.

Biı	nary Co	de	1	Let	tter	<u>5-b</u>	it Binary phabet
						A	00001
						В	00010
						C	00011
						D	00100
							00100
						E F	00101
						G	00110
						Н	01000
						I	01001
						j	01010
						K	01011
						L	01100
						M	01101
						N	01110
						0	01111
						P	10000
						Q R	10001
						R	10010
						S T	10011
						Т	10100
						U	10101
						V	10110
			+			W	10111
						X	11000
						Y	11001
						Z	11010

Give your paper to another person and have them decode the *letters in your name*.





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#### **Activity 2 - Create a Binary Dictionary**

Create a binary dictionary by choosing a set of verbs, adjectives, and nouns to use for your mad libs.

Binar	y Code	Verb	01	111	
00	000		10	000	
00	001		10	001	
00	010		10	010	
00	011		10	011	
00	100				Noun
00	101		10	100	
00	110		10	101	
00	111		10	110	
01	000		10	111	
01	001		11	000	
		Adjective	11	001	
01	010		11	010	
01	011		11	011	
01	100		11	100	
01	101		11	101	
01	110		11	110	





C	0	r	n	e	1	1	C	e	n	t	e	r	f	0	r	M	a	t	e	r	i	a	1	S	R	e	S	e	a	r	C	h	
F	di	ıc	at	io	n	al	Pro	a	rai	m	5 (	Offi	ice											M	lod	lu	le	$\mathbf{s}$ ]	Li	bı	a	rv	

Student Name:	Date:	

#### **Activity 3 - Magnetic Mad Libs**

Using your words from your binary dictionary, fill in the mad lib below for both the word and the code. *Do not show this sheet to your partner!* 

#### A ghost in Science Class

What's up? You'll never believe what happened in science class this morning.
Ms. Ratchet was dissecting a () [noun], when suddenly
over Ms. Ratchet's head was its ghost! The ghost said, in a disembodied voice,
"Ms. Ratchet, you have killed my fellow, and I am very ()
[adj]!" Ms. Ratchet grabbed a () [noun] and began
() [verb] at/with the ghost. Then, the assistant principal
came in, and he and Ms. Ratchet started () [verb] together!
The classroom was in chaos until I thought, "something isn't right here". I looked
more closely, and saw that the "ghost" was held up by ()
[noun] connected to the ceiling, and the "voice" was coming from a pair of
() [noun] in the back of the classroom. When I saw
Kaleigh laughing like a wild () [noun], I knew that she must be
behind this. We'd been punked!

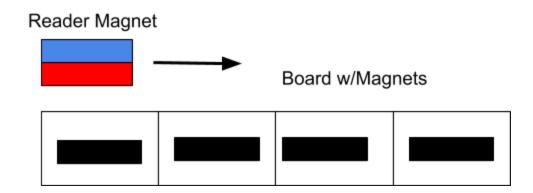




Student Name:	Date:
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Use your hard drive board to communicate the binary code to your partner.

Set up the board, so that when you pass the reading magnet over the board, it will attract the red side (1) or repel it (0):



Work through the words in the mad lib, having your partner write the binary code and word in the mad lib on back

Compare your mad lib to your partners. Were they able to accurately read your code?



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Student Name:	Date:
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A ghost in Science Class
What's up? You'll never believe what happened in science class this morning.
Ms. Ratchet was dissecting a () [noun], when suddenly
over Ms. Ratchet's head was its ghost! The ghost said, in a disembodied voice,
"Ms. Ratchet, you have killed my fellow, and I am very ()
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Kaleigh laughing like a wild () [noun], I knew that she must be
behind this. We'd been punked!



Student Name:	Date:
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#### **Activity 2 - Create a Binary Dictionary**

Create a binary dictionary by choosing 8 verbs, 8 adjectives, and 8 nouns to use for your mad libs.

Binar	y Code	Verb	01	111	
00	000		10	000	
00	001		10	001	
00	010		10	010	
00	011		10	011	
00	100				Noun
00	101		10	100	
00	110		10	101	
00	111		10	110	
01	000		10	111	
01	001		11	000	
		Adjective	11	001	
01	010		11	010	
01	011		11	011	
01	100		11	100	
01	101		11	101	
01	110		11	110	

#### **Activity 3 - Magnetic Mad Libs**





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Student Name: Date	e:
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Using your words from your binary dictionary, fill in the mad lib below for both the word and the code. *Do not show this sheet to your partner!* 

#### The new kid

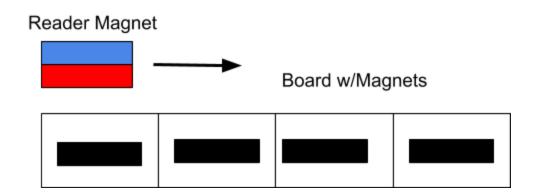
Hey! Did you see the new kid in class this week, Alison? She's seriously		
()[adj]. I heard that she just transferred from a special school		
for kids with () [adj] () [noun]. I felt		
bad for her because she didn't know anybody, so I went to go talk to her during lunch.		
You know what she said?? She asked me if I liked () [noun],		
and she offered to show me hers sometime. I was pretty ()		
[adj], but I said yes, just out of curiosity. So yesterday, I went to her house, and when I		
got there, she and her sister had a huge pile of () [noun], and		
they were () [verb]! I thought this was funnier than a		
() [noun] in a tutu. Turns out, Alison and her sister are		
hilarious. So now we're like totally friends. We should all hang out sometime!		



Student Name:	Date:	

Use your hard drive board to communicate the binary code to your partner.

Set up the board, so that when you pass the reading magnet over the board, it will attract the red side (1) or repel it (0):



Work through the words in the mad lib, having your partner write the binary code and word in the mad lib on back

Compare your mad lib to your partners. Were they able to accurately read your code?



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The new kid			
Hey! Did you see the new kid in class this week, Alison? She's seriously			
()[adj]. I heard that she just transferred from a special scho			
for kids with () [adj] () [noun].			
I felt bad for her because she didn't know anybody, so I went to go talk to her			
during lunch. You know what she said?? She asked me if I liked			
() [noun], and she offered to show me hers sometime. I was pretty			
() [adj], but I said yes, just out of curiosity. So yesterday, I			
went to her house, and when I got there, she and her sister had a huge pile of			
() [noun], and they were () [verb]!			
thought this was funnier than a () [noun] in a tutu. Turns			
out, Alison and her sister are hilarious. So now we're like totally friends. We			
should all hang out sometime!			

**Summary: How do Hard Drives Work?** 





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Student Name:	Date:
Hard drives store information in a special mathematical way called binary. What does that mean? What is a bit?	
In a hard drive, what physical thing	represents each bit?
What is the physical difference bety	ween "0" and "1"?
Hard drives must be able to do two	main functions, what are they?

How does a hard drive read out information?





# Cornell Center for Materials Research Educational Programs Office Modules Library Student Name: Date:

Student Name:	Date:
How does a hard drive write information?	



