Teacher Answer Key

Code Studio Lesson Keys

for

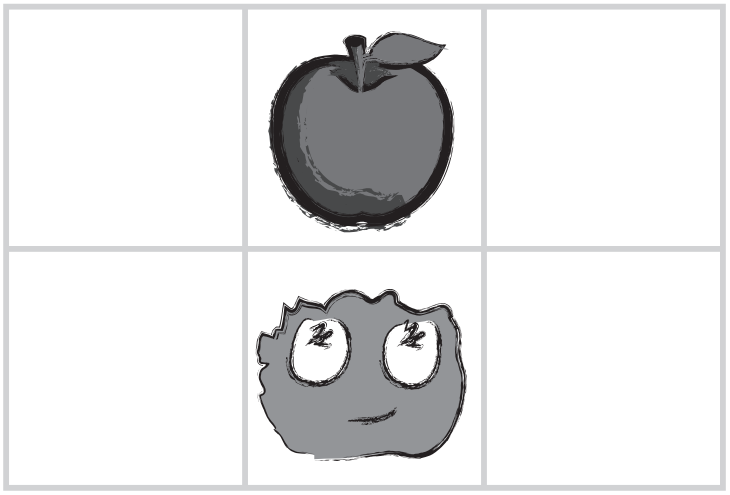
Courses 1 - 4

Teacher Answer Key

Course 1

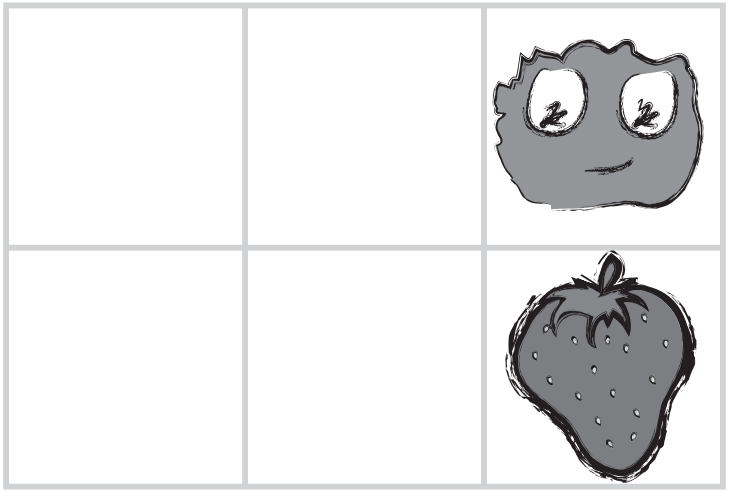
Teacher Key

1 Happy Map 1



Which way should the Flurb step to get to the fruit?

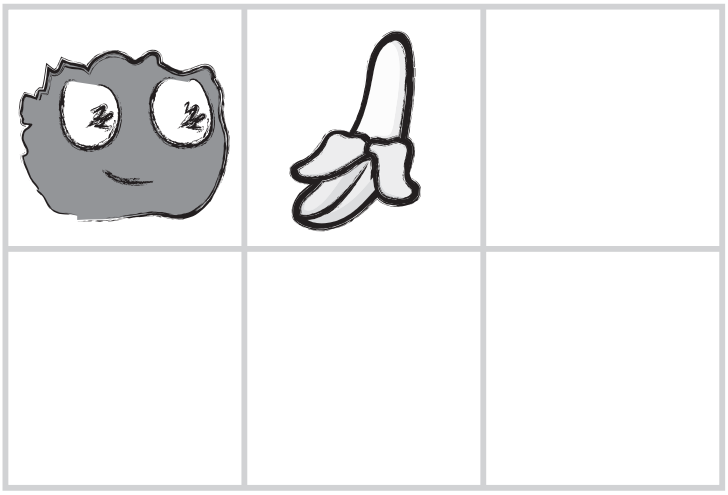
2 Happy Map 2



Which way should the Flurb step to get to the fruit?

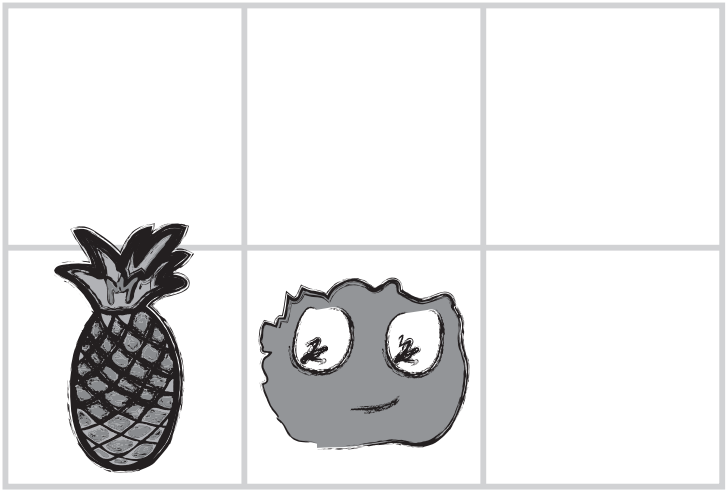
Teacher Key

3 Happy Map 3



Which way should the Flurb step to get to the fruit?

4 Happy Map 4



Which way should the Flurb step to get to the fruit?

U

Unplugged

Name: _____ Date: _____

Teacher Key

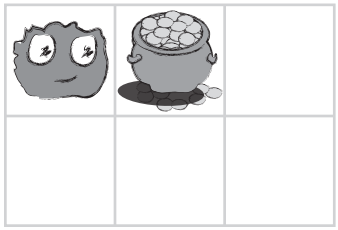
Move the Flurbs

Assessment Worksheet

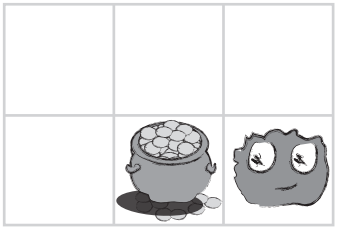
C O D E

The Flurb's pot of gold is in danger! Help her get to it as quickly as possible before it disappears.

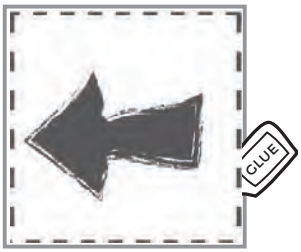
To show the Flurb how to get to her pot of gold, cut out the correct arrows from the bottom of the page and paste them in the program slots by each of the picture maps.

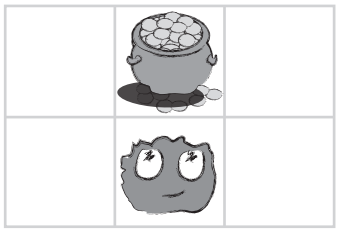


PROGRAM 1

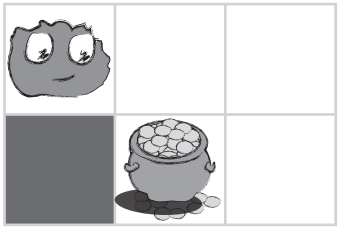


PROGRAM 2





PROGRAM 3



EXTRA CREDIT PROGRAM

U

Unplugged

Name: _____ Teacher Key

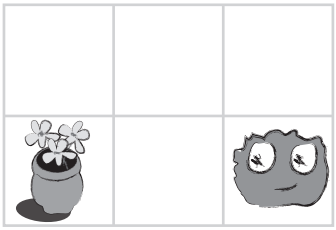
Move the Flurbs 2

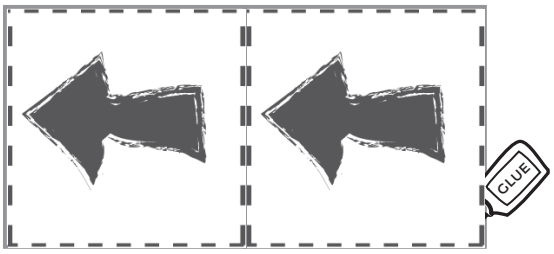
Assessment Worksheet

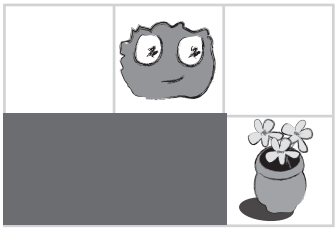
C O
D E

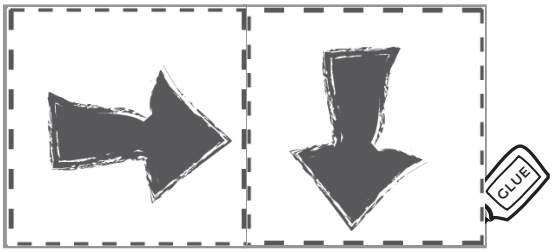
The weather is getting hot. Help the Flurb get to her flowers so she can water them.

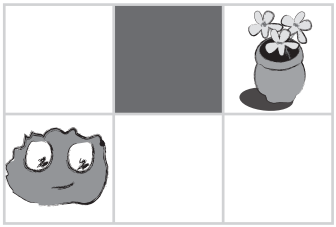
To show the Flurb how to get to her flowers, cut out the correct arrows from the bottom of the page and paste them in the program slots by each of the picture maps.

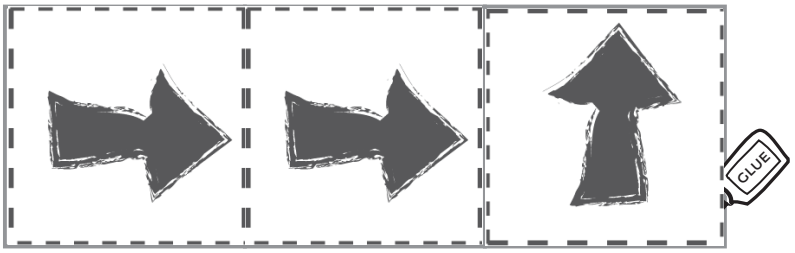


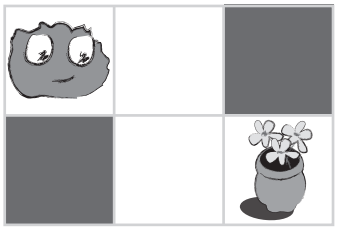


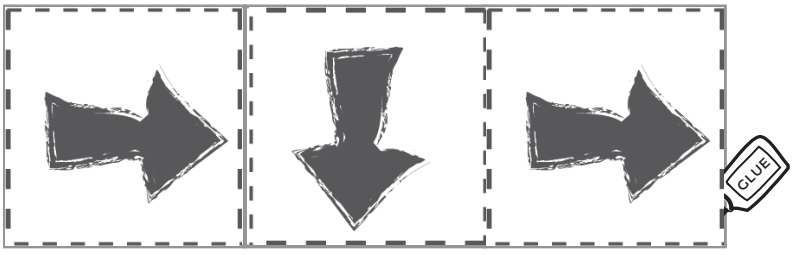












Teacher Key

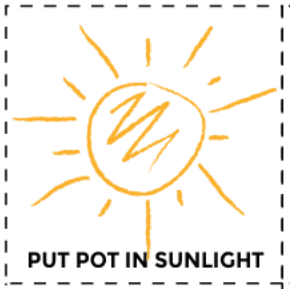

FILL POT WITH SOIL


POKE HOLE IN SOIL


PUT SEED IN HOLE


COVER SEED WITH SOIL


WATER POT


PUT POT IN SUNLIGHT

U

Unplugged

Name: _____ Teacher Key

Real-Life Algorithms

Assessment Worksheet

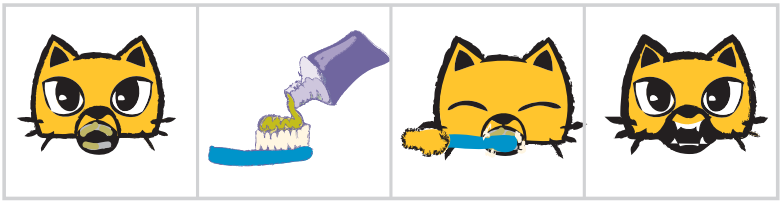
C O D E

An algorithm is a list of steps that you can follow to finish a task. We follow algorithms every day when it comes to activities like making the bed, making breakfast, or even getting dressed in the morning.

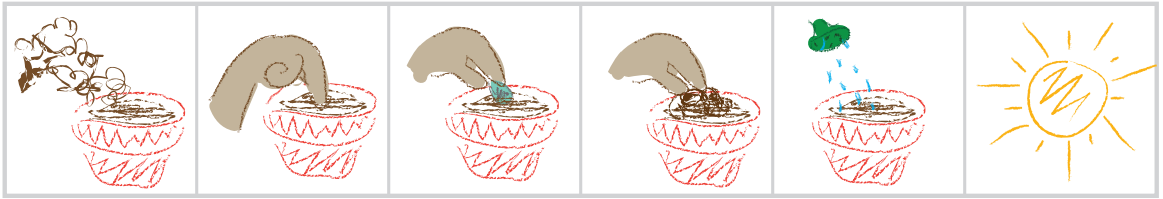
Connie the Coder just woke up and is still feeling very sleepy. Can you put together some algorithms to help Connie get ready for the day?

Help Connie Put on Shoes:

Help Connie Brush her Teeth:



Help Connie Plant a Seed:



U

Unplugged

Name: _____ Date: _____

Teacher Key

Getting Loopy

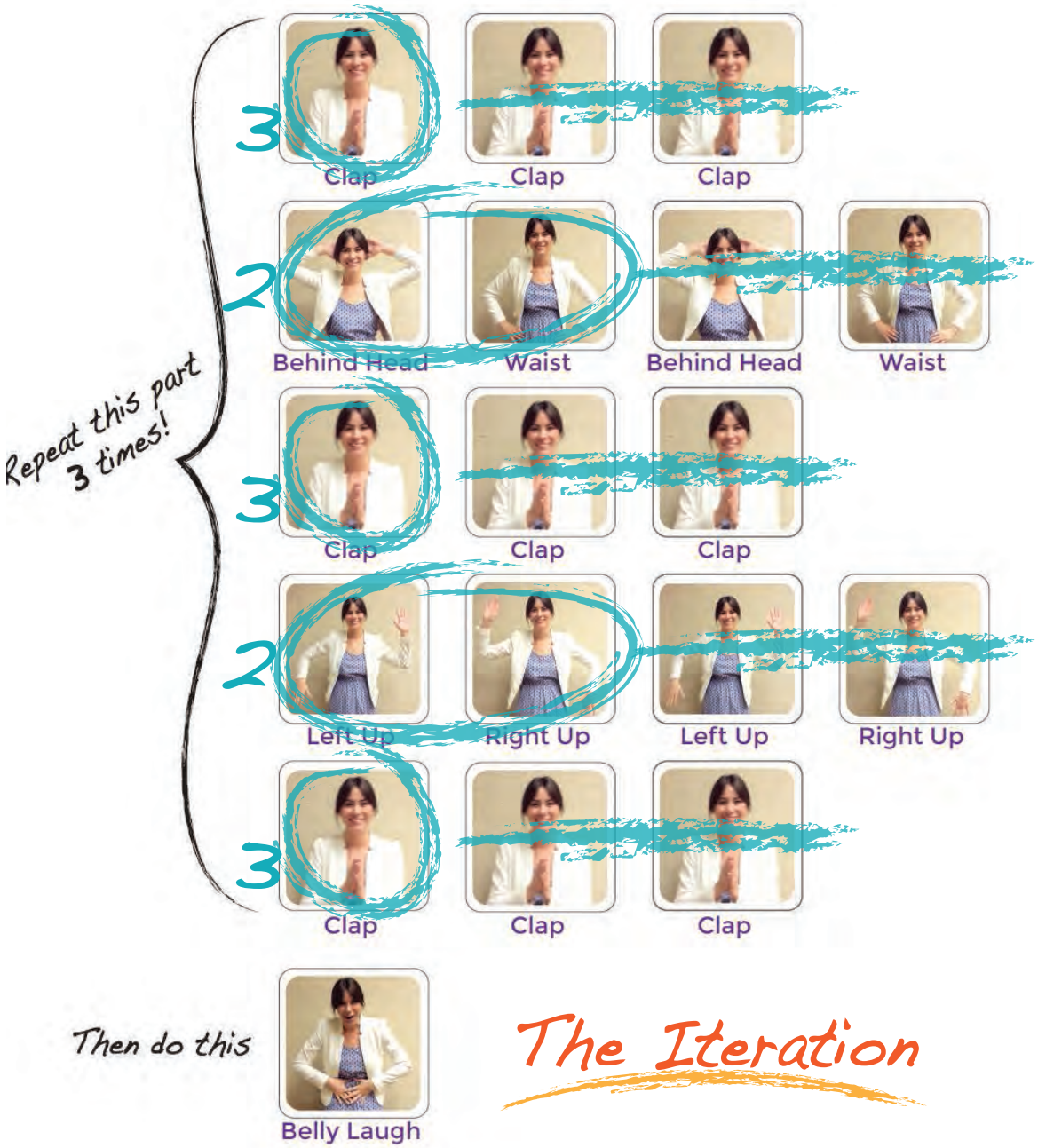
Unplugged Loops Activity

C O D E

Looping can save space!

What if we wanted to take The Iteration dance below and make more loops inside? Can you circle the actions that we can group into a loop and cross out the ones that we don't need anymore? Write a number next to each circle to let us know how many times to repeat the action.

The first line has been done for you.



The Iteration

U

Unplugged

Name: _____ Date: _____

Teacher Key

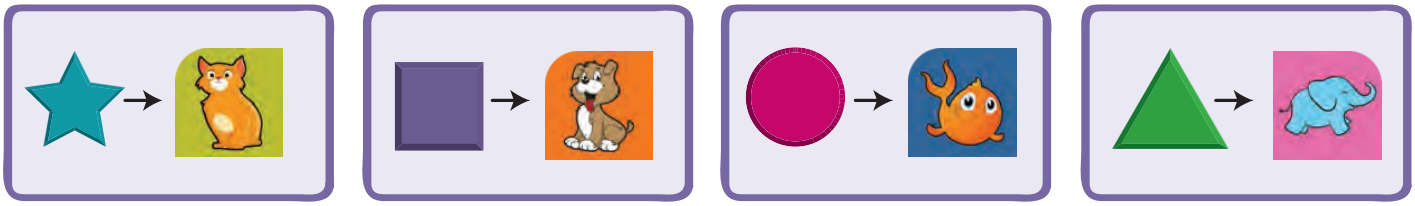
The Big Event

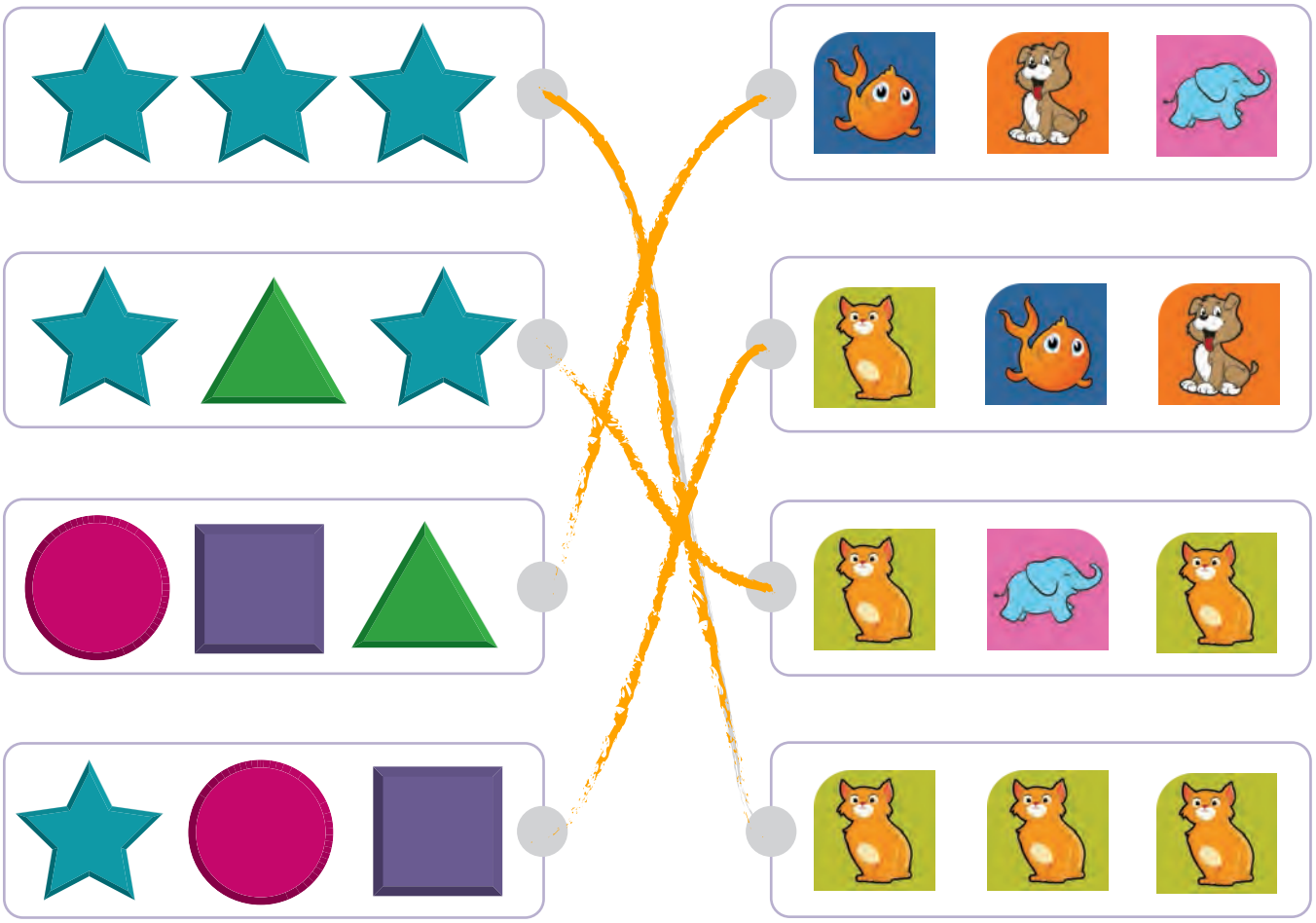
Controlling by Events Assessment

C O D E

You've been given a magical controller that changes the picture on the frame on your desk.

Take a look below to see what each button does. Can you figure out which series of button events will cause your frame to show the pictures on the right? Draw a line from each set of pictures to the button combination that causes it. The first one has been done for you.





Name: _____ Date: _____

U

Unplugged

Keep It Private

Learning to be Safe and Responsible Assessment

C O D E

Just because you **can** share something online doesn't mean that you **should**!

---

1) Circle the place you would most like to visit online

Circle Any Below

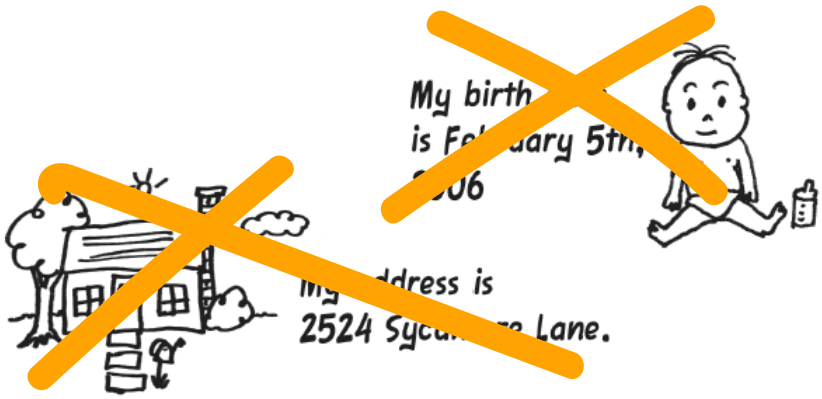
THE JUNGLE

OUTER SPACE

THE OCEAN

---

2) Can you spot the private information? Mark "X" through the information that you should not share with people you do not know well.



I like watermelon.

I like swimming.

---

3) On the back of this paper, draw something that you enjoy and want to share on the Internet.

Draw anything

Teacher Answer Key

Course 2

There are many options, here are the most efficient

Teacher Key

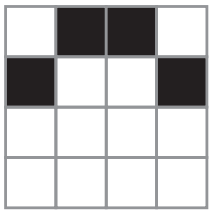


Image 1

→ ↯ → ↯ → ↓ ↯ ← ← ← ↯

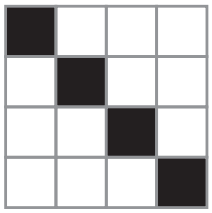


Image 2

↯ → ↓ ↯ → ↓ ↯ → ↓ ↯

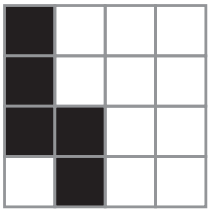


Image 3

↯ ↓ ↯ ↓ ↯ → ↯ ↓ ↯

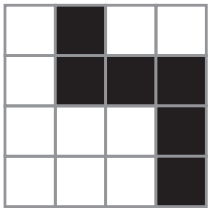


Image 4

→ ↯ ↓ ↯ → ↯ → ↯ ↓ ↯ ↓ ↯

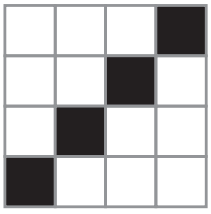


Image 5

→ → → ↯ ↓ ← ↯ ↓ ← ↯ ↓ ← ↯

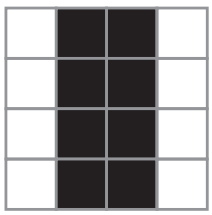


Image 6

→ ↯ → ↯ ↓ ↯ ← ↯ ↓ ↯ → ↯ ↓ ↯ ← ↯

Name: Teacher Key

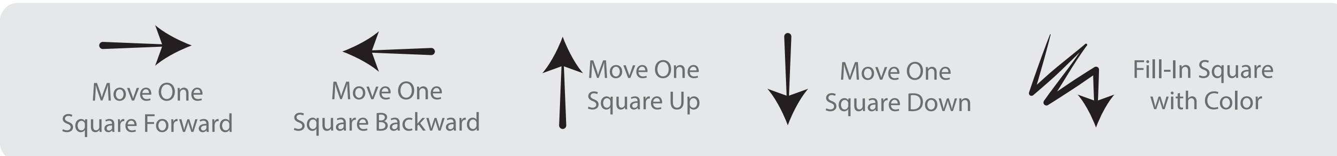
Graph Paper Programming

Unplugged

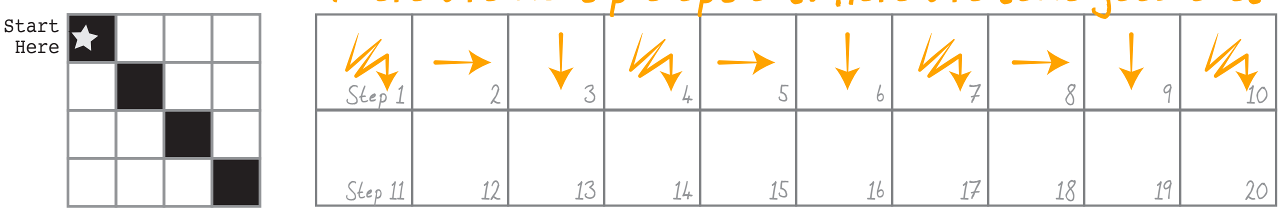
Assessment Worksheet

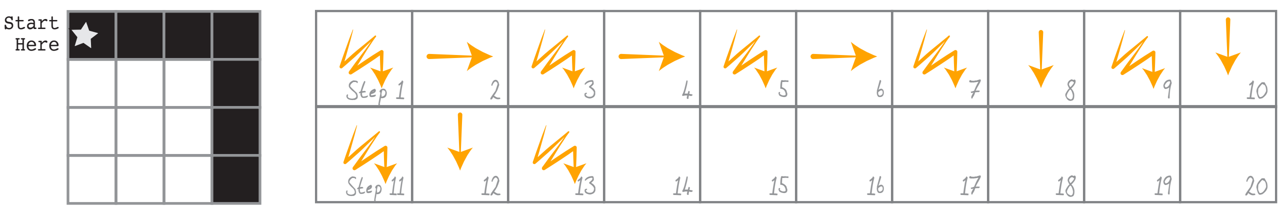
You have just learned how to create algorithms and programs from drawings, and how to draw an image from a program that someone gives to you. During the lesson, you worked with other people to complete your activities. Now you can use the drawings and programs below to practice by yourself.

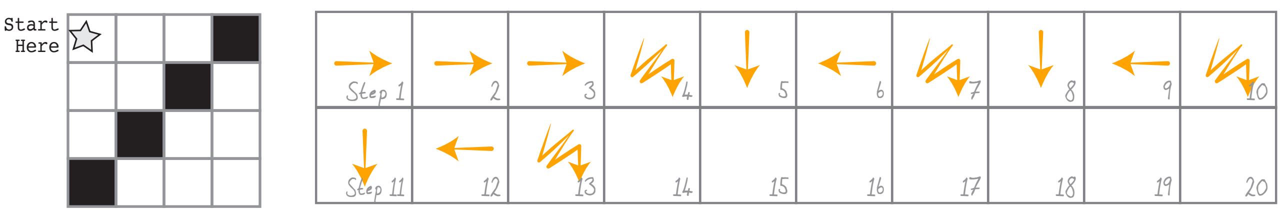
Use the symbols below to write a program that would draw each image.



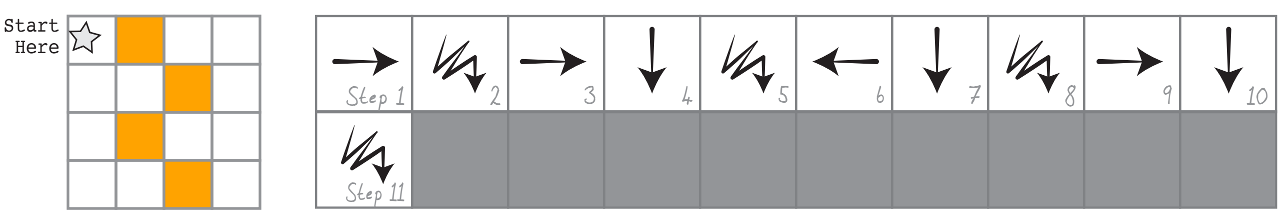
There are multiple options. Here are some good ones:



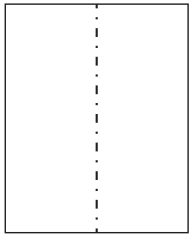




Now, read the program below and draw the image that it describes.

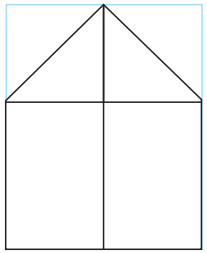


Teacher Key



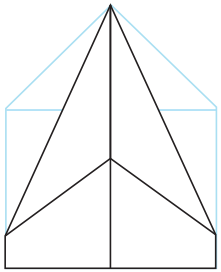
CREASE PAPER
DOWN THE CENTER

1



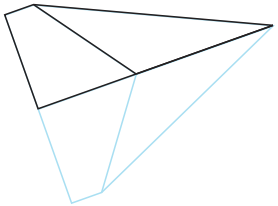
FOLD TOP CORNERS
TO CENTER

2



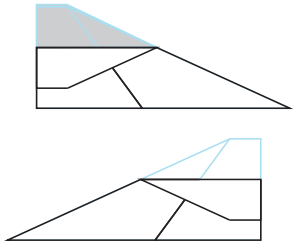
FOLD CORNER SIDES
TO CENTER

3



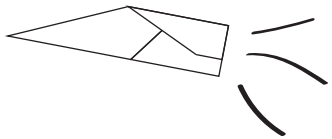
FOLD PAPER
IN HALF AGAIN

4



PULL SIDES DOWN

5



TOSS FINISHED PLANE

6

U

Unplugged

Name: _____ Date: _____

Teacher Key

Daily Algorithms

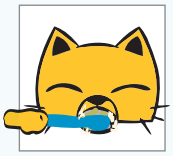
Assessment Worksheet

C O D E

An algorithm is a list of instructions for acomplishing a task. We follow algorithms everyday when it comes to activities like making the bed, making breakfast, or even getting dressed in the morning.

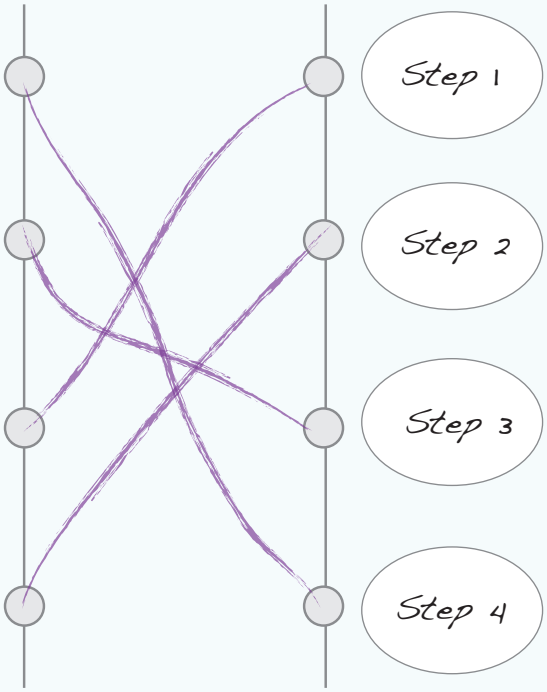
These images are not in order. First, describe what is happening in each picture on the line to its left, then match the action to it's order in the algorithm. The first one has been done for you as an example.

Teeth are clean! 

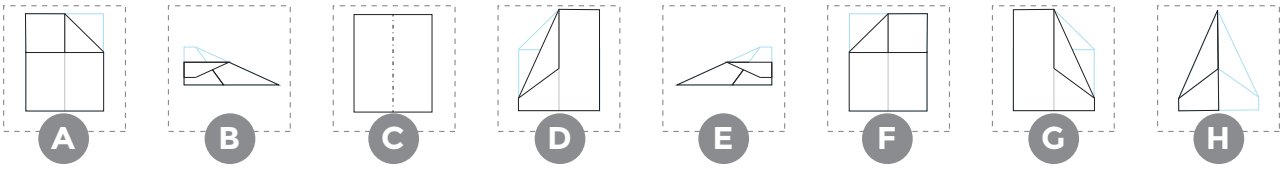
Brush Teeth 

Teeth are dirty! 

Put toothpaste on brush 



Sometimes you can have more than one algorithm for the same activity. The order of some of these steps can be changed without changing the final product. Use the letters on the images below to create two algorithms for making a paper airplane.



ALGORITHM 1: C F A D G H B E

ALGORITHM 2: C A F G D H E B

U

Unplugged

Name: _____ Date: _____

Teacher Key

Getting Loopy

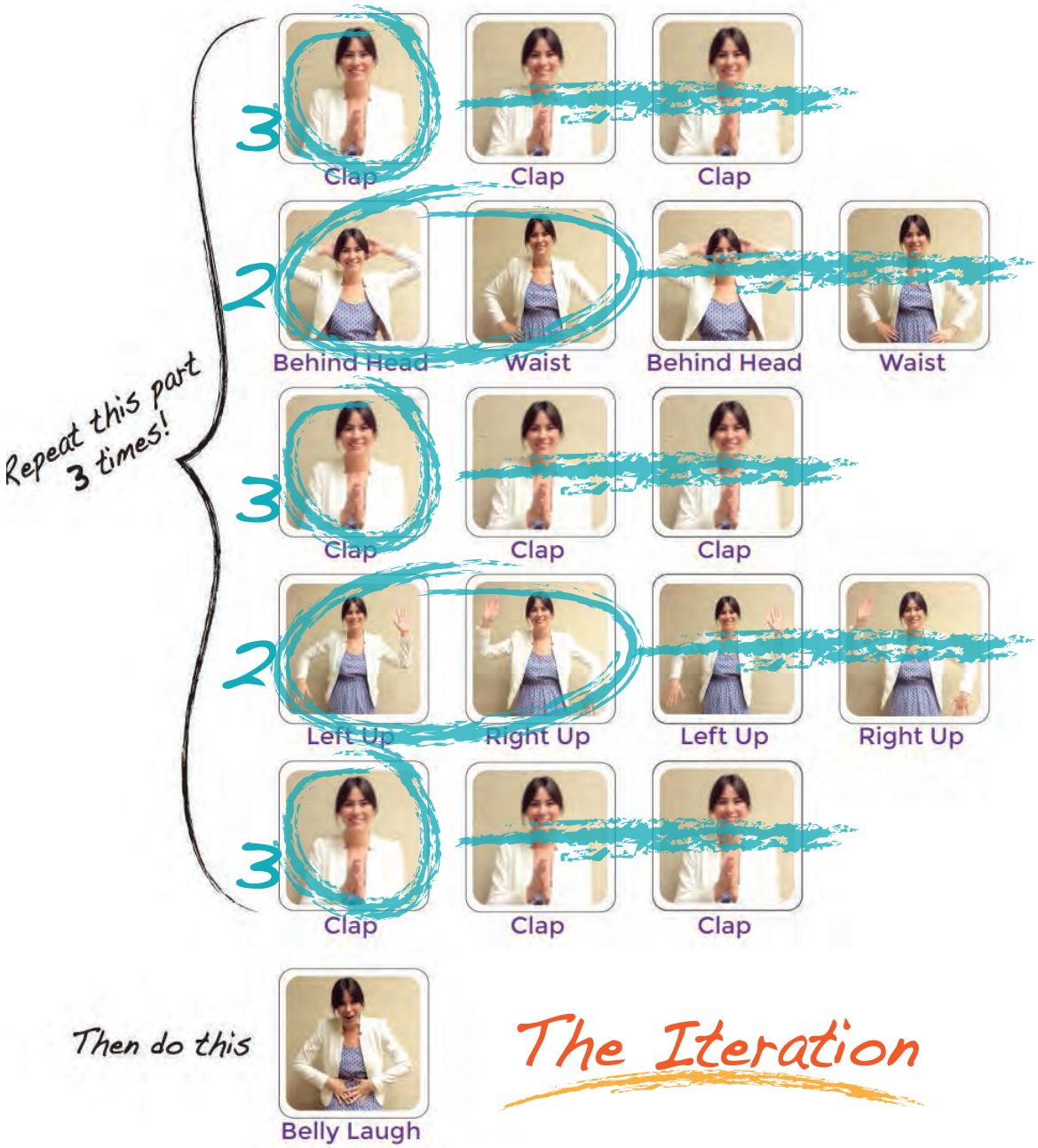
Unplugged Loops Activity

C O D E

Looping can save space!

What if we wanted to take The Iteration dance below and make more loops inside? Can you circle the actions that we can group into a loop and cross out the ones that we don't need anymore? Write a number next to each circle to let us know how many times to repeat the action.

The first line has been done for you.



The Iteration

U

Unplugged

Name: _____ Date: _____

Teacher Key

Debugging

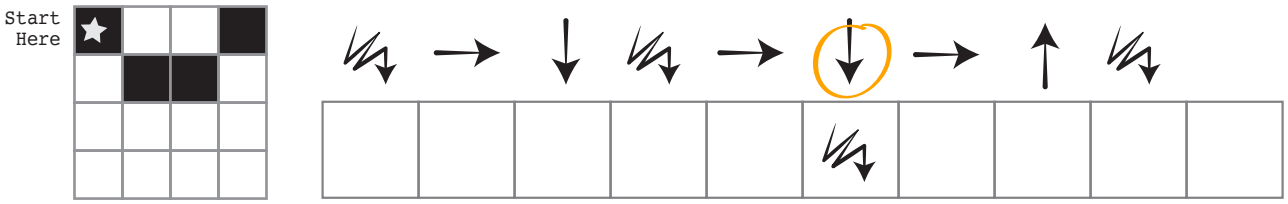
Assessment Worksheet

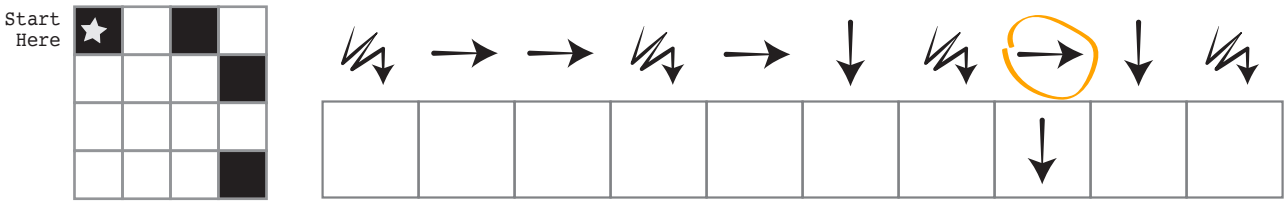
C O D E

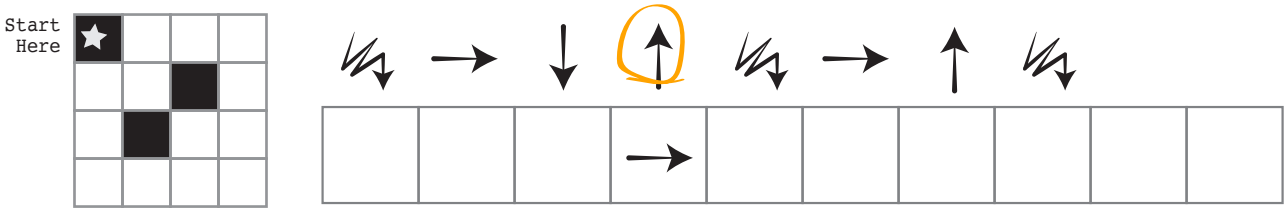
Sometimes when you are coding in groups, someone will make an error that will affect everyone.

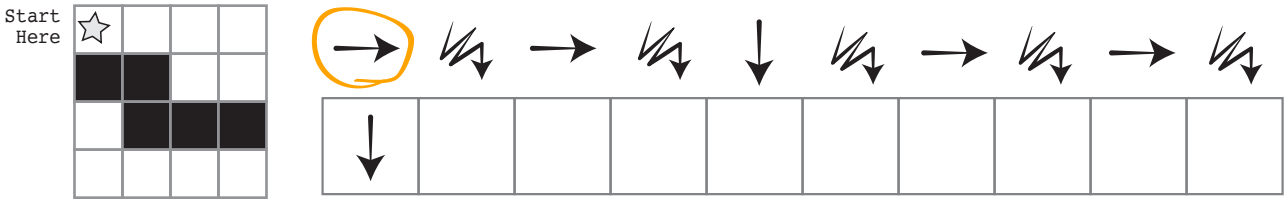
Somebody has already written programs for the images below, but each one has a mistake! Figure out what the programs are *supposed* to look like, and circle the error in each one. Then, draw the correct symbol in the box beneath.

Each program should use the symbols below to draw the image to its left.









U

Unplugged

Name: _____ Date: _____

Teacher Key

Conditionals with Cards

Assessment Activity

C O
D E

Look at the program below.

The steps below show each team taking turns to play the Conditionals Game. See if you can figure out what happens for each draw. Write down the score during each round along the way. After three rounds, circle the winner.

```
    If (CARD is lower than 5)
*       If ( CARD is BLACK)
            Award YOUR team the same
            number of points on the card.

#       Else
            Award OTHER team 1 point.

    Else
@       If ( CARD is HEARTS)
            Award YOUR team 1 point
```

Here's how the game went:

	TEAM #1	END OF ROUND SCORE	TEAM #2	END OF ROUND SCORE
		0		0
ROUND #1	* 3♠	3	@ 7♥	1
ROUND #2	# 4♥	3	* 4♣	6
ROUND #3	9♣	3	5♦	6

(3 + 0 + 0)

(1 + 1 + 4 + 0)

From Team #1 in Round #2

U

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Name: _____ Date: _____

Teacher Key

Binary Bracelets

Assessment for Binary Bracelets Lesson

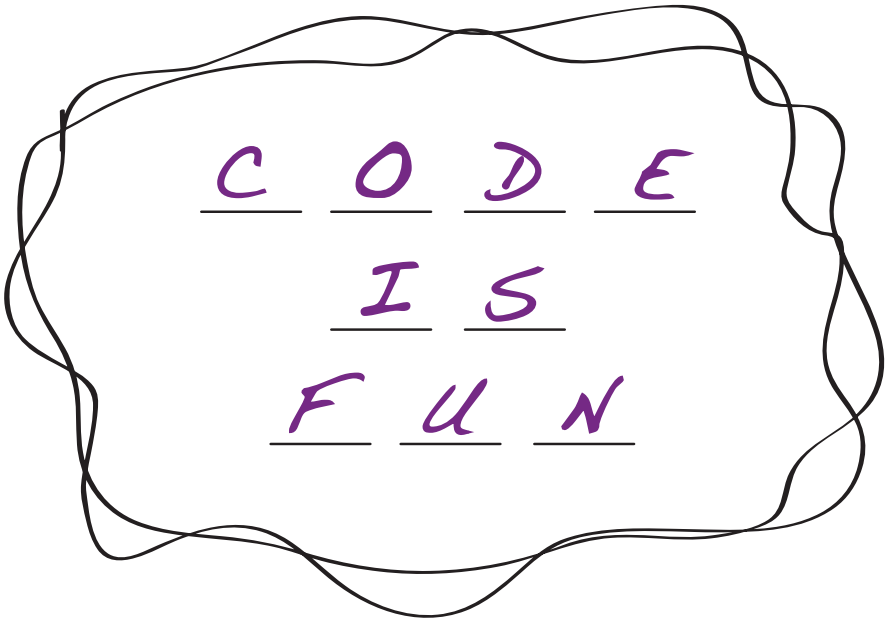
C O D E

Use the Binary Decoder Key below to decode the message at the bottom of the sheet.

A	■□■■	■■■□	N	■□■■	□□□■
B	■□■■	■■□■	O	■□■■	□□□□
C	■□■■	■■□□	P	■□■□	■■■■
D	■□■■	■□■■	Q	■□■□	■■■□
E	■□■■	■□■□	R	■□■□	■■□■
F	■□■■	■□□■	S	■□■□	■■□□
G	■□■■	■□□□	T	■□■□	■□■■
H	■□■■	□■■■	U	■□■□	■□■□
I	■□■■	□■■□	V	■□■□	■□□■
J	■□■■	□■□■	W	■□■□	■□□□
K	■□■■	□■□□	X	■□■□	□■■■
L	■□■■	□□■■	Y	■□■□	□■■□
M	■□■■	□□■□	Z	■□■□	□■□■

Can you figure out what the message says?

■□■■ ■■□□	C
■□■■ □□□□	O
■□■■ ■□■■	D
■□■■ ■□■□	E
■□■■ □■■□	I
■□■□ ■■□□	S
■□■■ ■□□■	F
■□■□ ■□■□	U
■□■■ □□□■	N



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Teacher Key

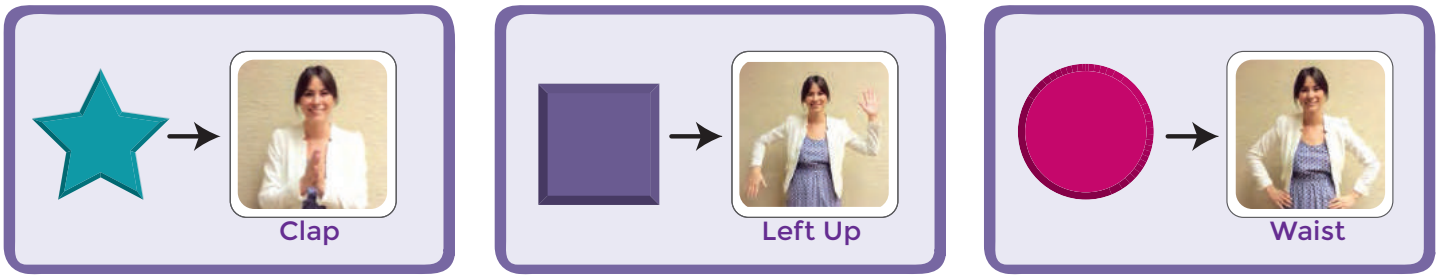
The Big Event

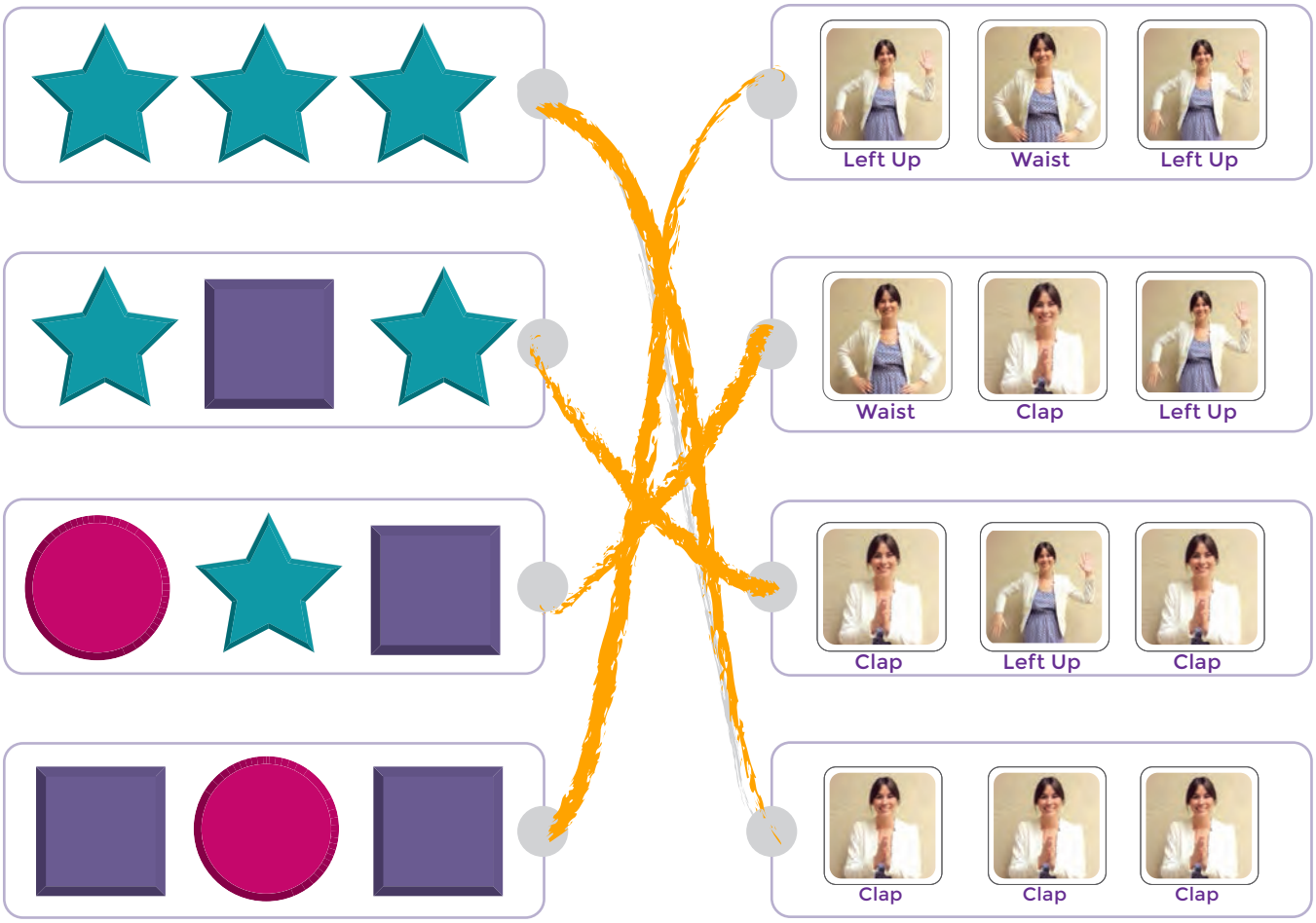
Controlling by Events Assessment

C O D E

You've been given a magical controller that makes your principal do funny things with her arms.

Take a look below to see what each button does. Can you figure out which series of button events will cause your principal to do each dance? Draw a line from each set of pictures to the button combination that causes it. The first one has been done for you.





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Name: _____ Date: _____

Teacher Key

Your Digital Footprint

Staying Safe and Responsible Assessment

C O D E

Just because you **can** share something online doesn't mean that you **should**!

Cross out the information that you should not share online. Use the words that are leftover as the key to what you should find in the word search.

WORDS

~~1) Your Real Name (NAME)~~
2) Your Online Name (NICKNAME)
~~3) Your Address (ADDRESS)~~
~~4) Your Email (EMAIL)~~
5) Your Favorite Color (COLOR)
6) The Last Book you Read (BOOK)
~~7) Your Credit Card Info (CARD)~~
8) Your Favorite Band (BAND)
~~9) Your Phone Number (PHONE)~~
10) What You Ate Today (FOOD)
~~11) Your Birthday (BIRTHDAY)~~

O	H	D	T	X	V	X	N	G	Y
L	X	Q	G	J	U	D	E	M	S
T	B	I	H	T	F	N	B	N	W
H	I	M	D	I	O	I	A	M	G
A	K	S	C	J	O	C	N	O	C
P	E	B	O	M	D	K	A	N	C
P	K	O	L	M	B	N	N	K	O
Y	Y	O	O	G	A	A	A	E	D
V	U	K	R	V	N	M	G	Y	E
R	Z	O	I	F	D	E	C	C	T

Which animal below has the digital footprint that leaves him or her most unsafe?
HINT: Think about which animal shares the most private information online.

	A) Fran the Fish	B) Betty the Bird	C) Tony the Tiger
Hobbies	swimming	flying	going to the 3rd Street gym
Address	the sea	a nest	523 Green Street
Other	pet's name is Frank	I love seeds!	My real name is Thomas (Hello, I'm Thomas)

Circle One:

A) Fran the Fish

B) Betty the Bird

C) Tony the Tiger

Teacher Key

Follow The Digital Trail

Directions

Follow the trails of Mizzle the Mouse and Electra the Elephant. Fill in the chart below. Then answer the questions.

	Mizzle the Mouse	Electra the Elephant
1. Whose full name do you know?		✓
2. Whose house could you find?		✓
3. Whose birth date do you know?		✓
4. Whose username and password do you know?		✓
5. Who let out a secret on the Internet?		✓
6. Which animal can you describe better from his or her photo?		✓

Question

1. Who can the detectives find out more about, and why?

Electra, because we now know where Electra lives, what she looks like, and private and personal information about her life.

(Point out to students that having a bigger digital footprint means the detectives can learn more about them too.)

2. Which animal has a bigger digital footprint?

Electra, because she put more private and personal information online than Mizzle.

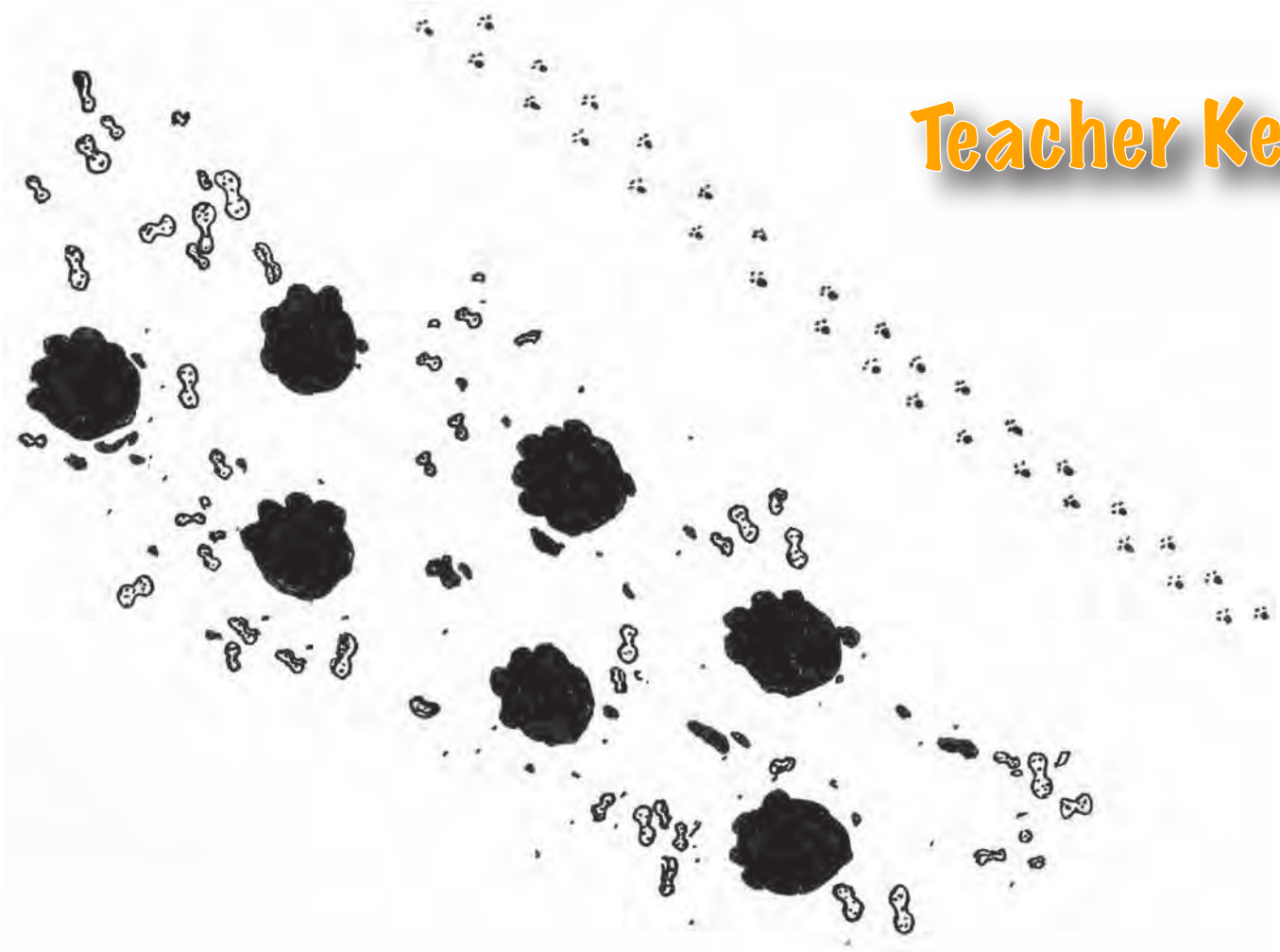
3. Mizzle says some funny things about himself on the Internet. What are they?

He says he likes Swiss cheese, his photo is of cheese, and he has a pet flea.

4. Is there anything that Electra posted on the Internet that could become a problem for her? If so, what and why?

Private and personal information (e.g., address, full name) allows others to learn more about her.

This could be unsafe. Saying that she fights with her brother could hurt her brother's feelings because it is public.



Teacher Key

Teacher Answer Key

Course 3

U

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Name: _____ Date: _____

Teacher Key

Computational Thinking

User Experience Scripts

C O
D E

Figure out how to play this game by looking at the players' phrases below. Circle the matching parts and underline words that are different from player to player. The first matching section has been circled for you.

Player 1:

"I chose a lion, and rolled a six, then a four, then a two. That means I need to draw a black cupcake on my lion's tail."

Player 2:

"I chose a donkey, and rolled a three, then a two, then a one. That means I need to draw a yellow pineapple on my donkey's head."

Player 3:

"I chose a puppy, and rolled a five, then a three, then a five. That means I need to draw a pink salmon on my puppy's nose."

Using pattern matching and abstraction, make yourself a template for game play by writing up the circled parts of the other students' experiences, and leaving the underlined sections as blanks.

"I chose a ____, and rolled a ____, then a ____, then a ____. That means I need to draw a ____ ____ on my ____."

U

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Name: _____ Date: _____

Teacher Key

Computational Thinking

Lesson Assessment

C O D E

Look at the problems below. Circle the matching sections and underline the places where there are differences. Once you've done that, write a template to create more phrases with the same pattern.

The first one has been done for you.

---

1) Triangles have three sides. Squares have four sides.

_____ have _____ sides.

2) It's fun to read books. It's fun to read magazines.

It's fun to read _____.

3) I love my cat's whiskers. I love my dog's tail.
I love my horse's tail. I love my cat's tail.

I love my _____ _____.

4) There is a cloud in the sky that looks like a dragon.
There is a leaf in the water that looks like a heart.
There was a rock in the yard that looks like a heart.

There ____ a _____ in the _____
that looks like a _____.

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Name: _____ Date: _____

Teacher Key

Functional Instructions

Skills Sheet

C O D E

Example:

SKILL 1

1) Bead
2) Knot
3) Bead
4) Knot
5) Spacer
6) Knot

SKILL 2

1) Special Bead
2) Finishing Knot
3) _____
4) _____
5) _____
6) _____

PROGRAM

1) Skill 1
2) Skill 1
3) Skill 2
4) _____
5) _____
6) _____

There are several other ways. Can you find 2 more?

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Name: _____ Date: _____

Teacher Key

Fun-ctional Skills

Functions and Variables Assessment

C O D E

Below, you will find three sets of skills, and a program that calls them.

Use the New Program and the skills that go with it to figure out what the steps of the Original Program were. Fill out the steps of the Original Program appropriately.

ORIGINAL PROGRAM

1) one
2) stinky
3) cat
4) one
5) stinky
6) banana
7) face
8) smells
9) cat
10) _____
11) _____
12) _____
13) _____
14) _____

NEW

SKILL 1

1) banana
2) face
3) smells
4) _____
5) _____

SKILL 2

1) cat
2) _____
3) _____
4) _____
5) _____

SKILL 3

1) one
2) stinky
3) _____
4) _____
5) _____

NEW PROGRAM

1) Skill 3
2) Skill 2
3) Skill 3
4) Skill 1
5) Skill 2

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Group Name: _____ Name: _____

Teacher Key

Songwriting Worksheet

Using Lyrics to Explain Functions - Assessment

C O D E

Song 1 Name: I'm a Nut

Chorus:

I'm a nut
I'm a nut
I'm a nut, I'm a nut, I'm a nut

Song 2 Name: Skip to my Lou

Chorus:

Lou, Lou, skip to my Lou,
Lou, Lou, skip to my Lou,
Lou, Lou, skip to my Lou,
Skip to my Lou, my darlin.

U

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Name: _____ Date: _____

Teacher Key

Real-Life Algorithms

Dice Race Activity

C O
D E

You can use algorithms to help describe things that people do every day. In this activity, we will create an algorithm to help each other understand the Dice Race game.

The hardest part about getting a problem ready for a computer can be figuring out how to describe real-life activities. We're going to get some practice by playing and describing the Dice Race game.

Read the rules below, then play a couple rounds of the Dice Race game. As you're playing, think about how you would describe everything that you're doing. What would it look like from the computer's point of view?

The Rules:

1) Set each player's score to 0.
2) Have the first player roll.
3) Add points from that roll to player one's total score.
4) Have the next player roll.
5) Add points from that roll to player two's total score.
6) Each player should go again two more times.
7) Check each player's total score to see who has the most points.
8) Declare Winner.

Game 1

Example:

	Turn 1	Turn 2	Turn 3	Total
Player 1	3 (+3)	5 (+2)	9 (+4)	9
Player 2	4 (+4)	10 (+6)	12 (+2)	12

Circle the Winner

Game 2

Example:

	Turn 1	Turn 2	Turn 3	Total
Player 1	6 (+6)	9 (+3)	13 (+4)	13
Player 2	1 (+1)	6 (+5)	8 (+2)	8

Circle the Winner

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Dice Race

Assessment Worksheet

Teacher Key

C O D E

Use the space below to play through the Dice Race game.

When you're done, use the bottom of the page to create an algorithm (list of steps) that someone else could use to learn how to play.

	Turn 1	Turn 2	Turn 3	Total
Player 1	3	8	14	14
Player 2	1	7	12	12

Circle the Winner

Now, take the steps that you've used to play the game above, and write them down in the slots below. Take advantage of the repeat loop to avoid having to write down instructions more than once.

Step 1 : Set scores to 0

Repeat 3 times

Step 2 : Roll Player 1

Step 3 : Add roll to P1 total score

Step 4 : Roll Player 2

Step 5 : Add roll to P2 total score

Step 6 : Compare scores

Step 7 : Circle Winner

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Name: _____ Date: _____

Teacher Key

The Internet

How the Internet Does What it Does

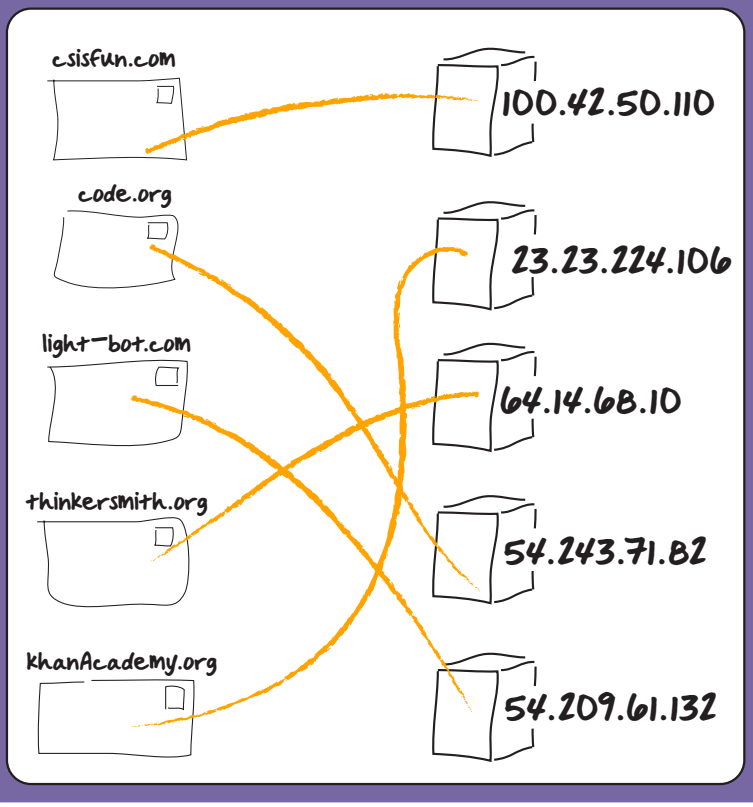
C O D E

The DNS has gone out, and now you're in charge of delivering information all over the Internet! Use the DNS Look-Up Table to figure out where each packet is supposed to go.

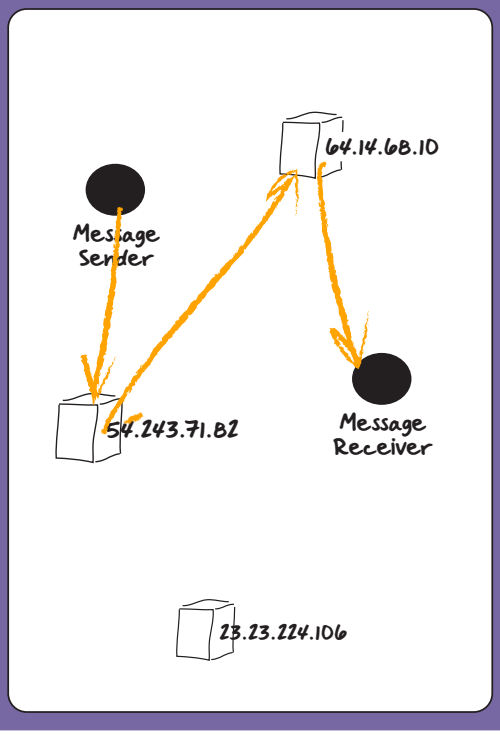
DNS Look-Up Table

#	URL	IP ADDRESS
1	code.org	54.243.71.82
2	csisfun.com	100.42.50.110
3	thinkersmith.org	64.14.68.10
4	light-bot.com	54.209.61.132
5	khanAcademy.org	23.23.224.106

Draw a line from each packet to the server where it is supposed to be delivered. The first one has been done for you.



This message is being delivered from someone at code.org to someone at thinkersmith.org. Draw the path that the message is likely to take.



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Name: _____ Date: _____

Teacher Key

Digital Citizenship

Assessment Worksheet

C O D E

Just because you **can** do something online doesn't mean that you **should**!

Cross out the information that you should not share online. Use the words that are leftover as the key to what you should find in the word search.

WORDS

~~1) Your Credit Card Info (CARD)~~
2) Your Online Name (NICKNAME)
3) What You Ate Today (FOOD)
~~4) Your Email (EMAIL)~~
5) Your Favorite Color (COLOR)
6) The Last Book you Read (BOOK)
~~7) The School You Attend (SCHOOL)~~
8) Your Favorite Band (BAND)
~~9) Your Phone Number (PHONE)~~
~~10) Your Address (ADDRESS)~~
~~11) Your Birthday (BIRTHDAY)~~

D	N	L	M	W	U	R	E	C	D
U	F	I	D	V	V	H	C	O	N
C	J	Y	C	I	U	A	M	L	A
G	A	S	R	K	N	K	O	O	B
T	X	R	P	D	N	X	R	R	P
D	N	J	Y	X	I	A	I	B	T
E	O	R	N	X	I	E	M	W	P
D	K	O	Q	K	D	N	D	E	T
J	Z	C	F	O	B	I	K	E	G
W	P	V	C	I	Y	V	E	J	A

Write a paragraph in the area below, telling about what you will do when you're on the Internet to make sure that you practice kind and respectful behavior.

This can come from the lesson, or be additional items that the students have learned.

Teacher Answer Key

Course 4

U

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Name: _____ Date: _____

Teacher Key

Algorithms

Tangrams Assessment Worksheet

C O D E

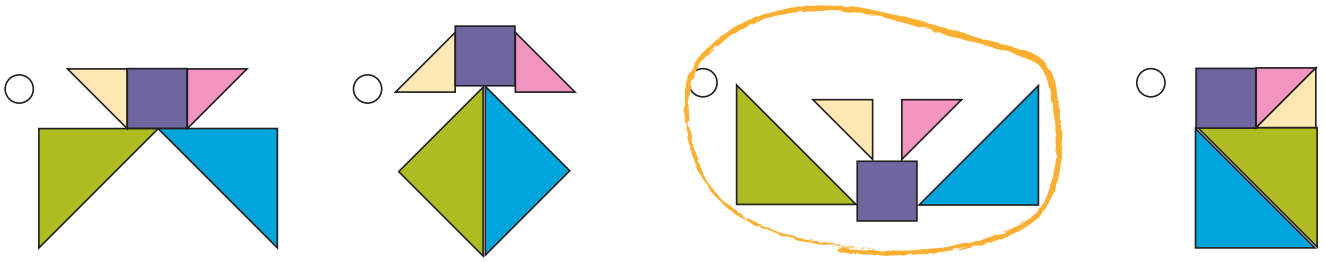
Very specific algorithms help multiple people create identical products.

Less specific algorithms allow a great deal of flexibility for every person to have something different.

Circle the drawing that does not follow the algorithm provided.

Algorithm #1

1) Put two large triangles at the bottom of the image.
2) Put a square on top of those two triangles.
3) Put two little triangles beside the square.



Circle the algorithm that goes with Drawing 1.

Algorithm A

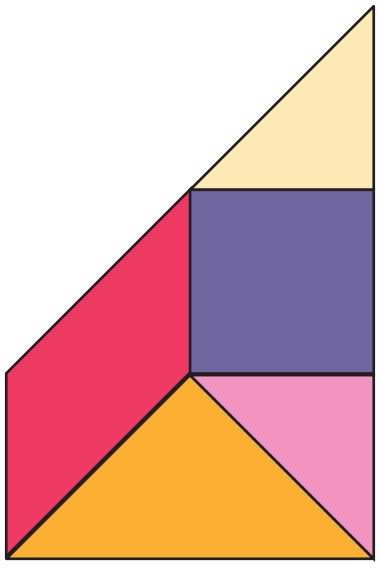
1) Use two triangles, a square, and another piece
2) Line two triangles up with the square
3) Put the last piece on top of the square

Algorithm B

1) Use three triangles, a rhombus, and another piece
2) Put the rhombus at the bottom
3) Put all three triangles above the rhombus
4) Put the final piece to the left of everything else

Algorithm C

1) Use three triangles, a square, and another piece
2) Line two triangles up with the square
3) Put a third triangle beneath the other shapes
4) Put the last piece on the left



Drawing 1

U

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Name: _____ Date: _____

Teacher Key

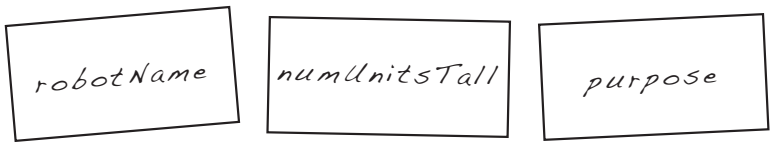
Variables in Envelopes

Robot Variables Worksheet

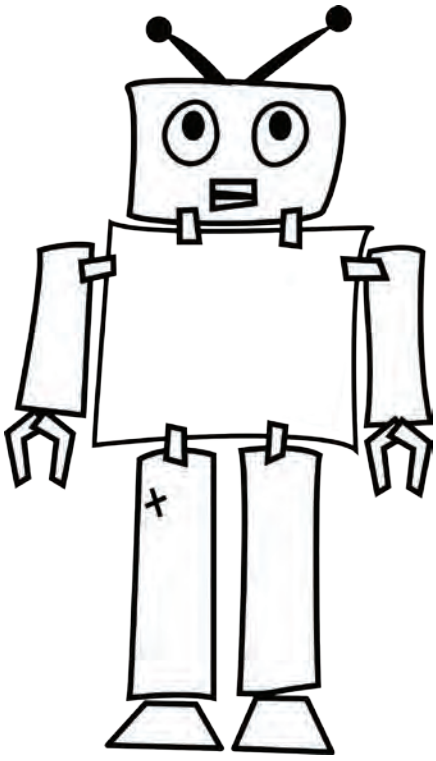
C O D E

Think about a robot. What is it supposed do? What does it look like?

Draw your robot on paper. When you're done, answer the three questions below on separate pieces of paper, then put them in the correct envelopes.



Example



1. My robot's name is Elijah. robotName = Elijah

2. My robot's hight is 27 feet (don't forget units!). numUnitsTall = 27 feet

3. My robot's primary purpose is being awesome. purpose = being awesome

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Name: _____ Date: _____

Teacher Key

Variables in Envelopes

Variables Assessment Worksheet

C O D E

Given the value of each variable envelope, fill-in the blanks to finish the sentence.

color = pink

petalNumber = 22

animal = monkey

bestSport = golf

hobby = coding

When I grow up, I want to own a guard monkey (animal).

I found a flower with 22 (petalNumber) petals, so I picked it.

My dad just painted his house pink (color) to match his car.

I love coding (hobby). I do it every evening.

There is no such thing as a pink (color) river, so if you find one, don't swim in it!

The best sport in the world is golf (bestSport), do you agree?

Variable envelopes can also contain number values. Use these envelopes and the provided equations to figure out the magic numbers below.

numOne = 2

numTwo = 5

numThree = 7

5 (magicNumberA) = 7 (numThree) - 2 (numOne)

10 (magicNumberB) = 5 (numTwo) x 2 (numOne)

52 (magicNumberC) = 2 (numOne) + 5 (numTwo) x 10 (magicNumberB)

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Name: _____ Teacher Key

Mad Glibs

Abstraction Assessment Worksheet

C O D E

The Mad Glib template that we used to make these stories has vanished! Look at the stories and figure out which words are supposed to be blanks, then recreate the template at the bottom of the page.

Story 1

Early last year, my mom gave me an old skateboard. She told me about the days when she would ride it from her school in her hometown. I tried to ride it once, but tripped over my shoelaces. It didn't take long before I decided that it was best to leave the skateboarding to my mom.

Story 2

Sometime last year, my mom told me an old story. She told me about the days when she would hear it from her father in her childhood. I tried to tell it once, but tripped over my words. It didn't take long before I decided that it was best to leave the storytelling to my mom.

Create new template here:

Just last year, my mom showed me an old computer. She told me about the days when she would program it to draw circles. I tried to use it once, but tripped over my fingers. It didn't take long before I decided that it was best to leave the old machine to my mom.

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Name: _____ Teacher Key

Mad Glibs

Abstraction Worksheet

C O D E

Write a story using the Mad Glibs template below. Fill in the blanks with words to create something fun to share. Then, create a second story by writing another version on the lines at the bottom of the page.

Story 1 Example:

First you take your __bread__ then add a layer of __butter__ before you pour on a hearty dose of __jelly__ .

Next, press some __chips__ down into the __bread__ before covering with a sprinkle of __pepper__ .

That's how we make a __sandwich__ !

Story 2 Example:

First, take your planter, then add a layer of soil before you pour on a hearty dose of water. Next, press some seeds down into the soil before covering with a sprinkle of moss. That's how we make a flower!

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Name: _____ Date: _____

Teacher Key

For Loop Fun

Sample Game Sheet

C O D E

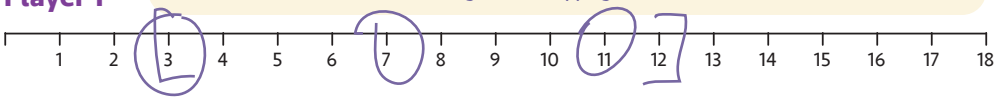
Directions:

* Use the number lines to trace the "for loop" for each turn
  * Start at the starting value of X
  * Count down the number line, circling the numbers at the correct interval
  * Stop when you get to the stopping value
* Add all of the circled values to get the score for your round
* Best 2 out of 3 Wins

ROUND 1

Player 1

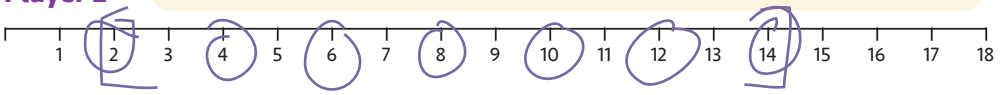
For values of **X** from 3 (starting value) to 12 (stopping value) incrementing by 4 (interval)



Score: 21

Player 2

For values of **X** from 2 (starting value) to 14 (stopping value) incrementing by 2 (interval)

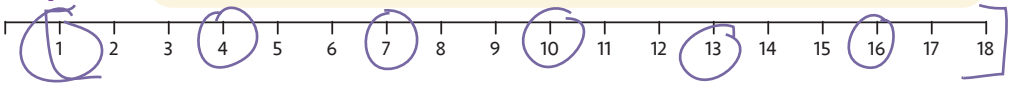


56

ROUND 2

Player 1

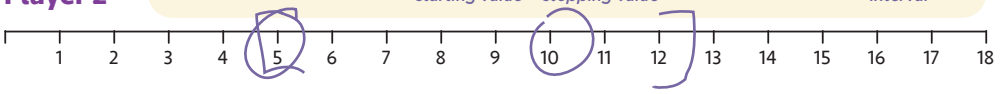
For values of **X** from 1 (starting value) to 18 (stopping value) incrementing by 3 (interval)



51

Player 2

For values of **X** from 5 (starting value) to 12 (stopping value) incrementing by 5 (interval)

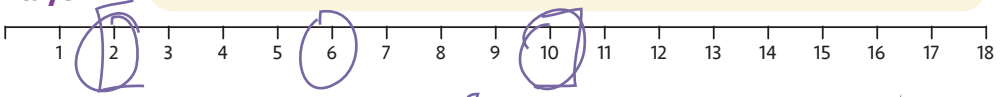


15

ROUND 3

Player 1

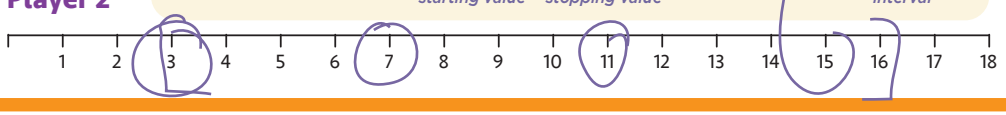
For values of **X** from 2 (starting value) to 10 (stopping value) incrementing by 4 (interval)



18

Player 2

For values of **X** from 3 (starting value) to 16 (stopping value) incrementing by 4 (interval)



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Unplugged

Name: _____ Date: _____

Teacher Key

For Loop Fun

Assessment Worksheet

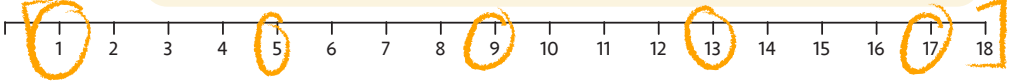
C O D E

Below, you will find three rounds of the For Loop Game, along with what each player rolled during their turn. Fill out the number lines and tally the scores for each round.
Who won the game?

ROUND 1

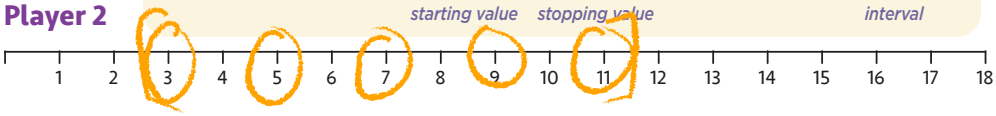
Player 1

For values of **X** from 1 (starting value) to 18 (stopping value) incrementing by 4 (interval)



Player 2

For values of **X** from 3 (starting value) to 11 (stopping value) incrementing by 2 (interval)



SCORE

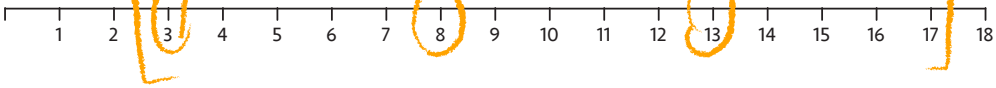
Player 1: 45

Player 2: 35

ROUND 2

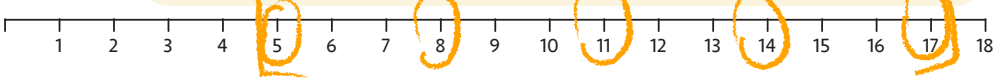
Player 1

For values of **X** from 3 (starting value) to 17 (stopping value) incrementing by 5 (interval)



Player 2

For values of **X** from 5 (starting value) to 17 (stopping value) incrementing by 3 (interval)



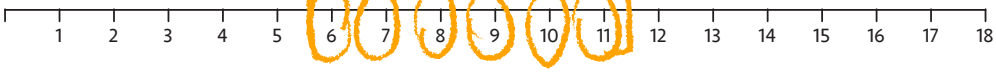
Player 1: 24

Player 2: 55

ROUND 3

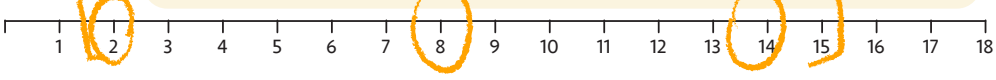
Player 1

For values of **X** from 6 (starting value) to 11 (stopping value) incrementing by 1 (interval)



Player 2

For values of **X** from 2 (starting value) to 15 (stopping value) incrementing by 6 (interval)



Player 1: 51

Player 2: 24

WHO WON?

PLAYER # 1

Directions:

* Use the number lines to trace the "for loop" for each turn
  * Start by circling the number at the starting value of X
  * Count down the number line, circling the numbers at the correct interval
  * Stop when you get to the stopping value
* Add all of the circled values to get the score for your round
* Best 2 out of 3 Wins

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Unplugged

Group Name: _____ Date: _____

Teacher Key

Songwriting Worksheet Example

Using Lyrics to Explain Functions and Procedures

C O D E

Song Name: Old MacDonald

Chorus:

Old MacDonald had a farm
e-i-e-i-o
And on that farm he had a **P1**
e-i-e-i-o
With a **P2** here and a **P2** there
Here a **P2**, there a **P2**
Everywhere a **P2**, **P2**

Parameter Examples:

Animal Name	Sound	
(P1)	(P2)	(P3)

Song:

Chorus(Cow, Moo)
Chorus(Pig, Oink)
Chorus(Horse, Neeeeigh)
Old MacDonald had a farm
eeeeeeee-iiiiiiiiii
eeeeeeee-iiiiiiiiii
ohhhhhhhhhhhhh!

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Name: _____ Date: _____

Teacher Key

Songwriting Worksheet

Lesson 8 Assessment - Finding the Function in a Song

C O D E

Song Name: Where is Thumbkin?

Chorus:

Where is P1?
Where is P1?
Here I am!
Here I am!
How are you today, sir?
Very well, I thank you.
Run away.
Run away.

Parameter Examples:

Finger		
(P1)	(P2)	(P3)

Song:

chorus (Thumbkin)

chorus (Pointer)

chorus (Middleman)

chorus (Ringman)

chorus (Pinkie)

U

Name: _____ Date: _____

Teacher Key

Binary Images

Binary Representation Activity

C O
D E

Match the image to the binary code that describes it. In order to get the images correct, you will need to figure out the binary alphabet for each encoding.

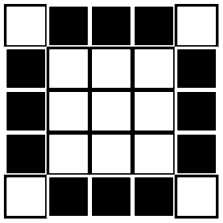

image #1

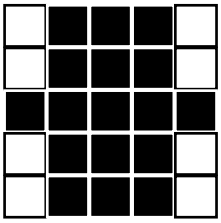

image #2

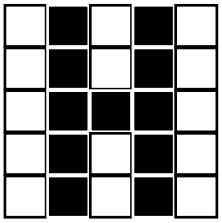

image #3

A) ★✖✖✖★★✖✖✖★✖✖✖✖✖★✖✖✖★★✖✖✖★

✖ = 0 ★ = 1 This encodes image # 2

B) ○●●●○●○○○●●○○○●●○○○●○●●●○

○ = 1 ● = 0 This encodes image # 1

C)

= 0 = 1 This encodes image # 3

How do you know that your answers are correct?

All of the corners are white, so those tell us what is 1. After that, all you have to do is match the pattern in each code to the pattern of each image when you spell it out line by line.