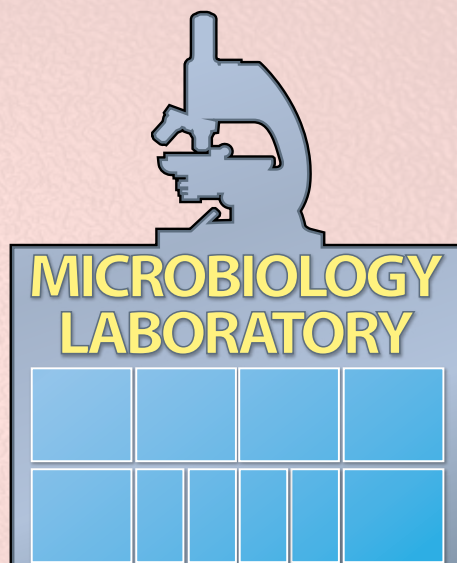




LIGHT RAIL

ENTER EXIT



MEDICAL TECHNOLOGIST



ENTER



EXIT

PHYSICIAN

GREENBIKE PATH



An Epidemiology Mystery from ARIZONA SCIENCE CENTER

GREENBIKE PATH

GREENBIKE PATH



LIGHT RAIL

A

DIRECTIONS: Cut on the dotted lines. Tape part A to part B

A



LIGHT RAIL

LIGHT RAIL

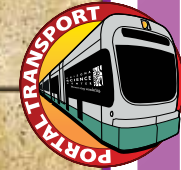
INTERNET EXPRESS

SCHOOL CAFETERIA

GREENBIKE PATH

ENTER

ENTER



EXIT

EXIT

SUB SHACK

DEPARTMENT OF PUBLIC HEALTH  
(MAKE YOUR CONCLUSION HERE)

INTERNET EXPRESS

The Chicken Coop

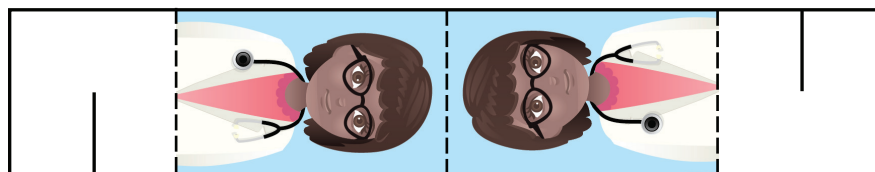
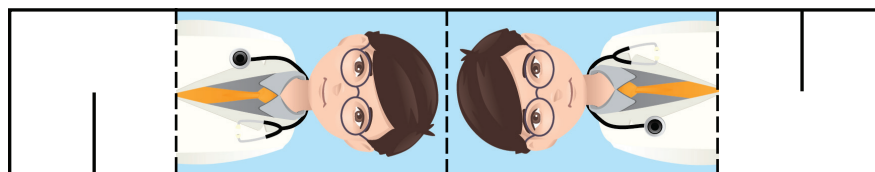
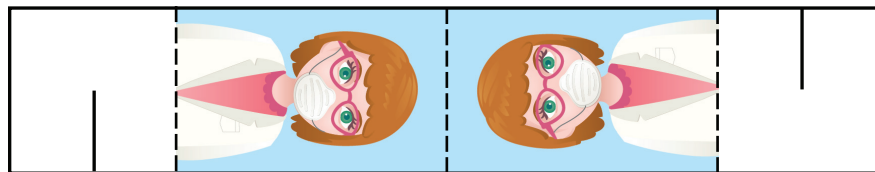
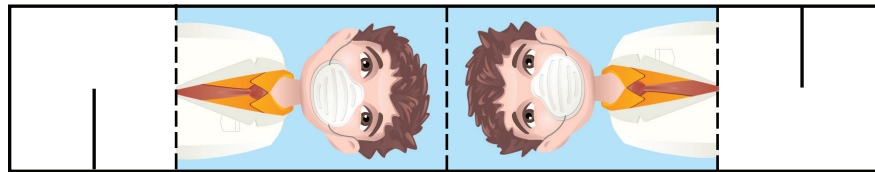
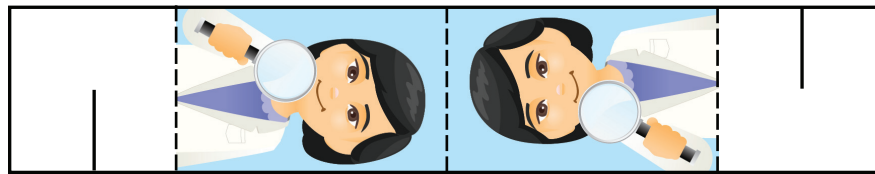
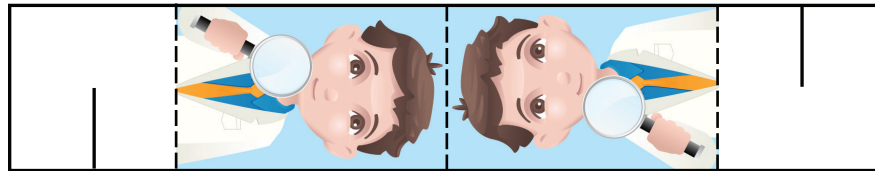
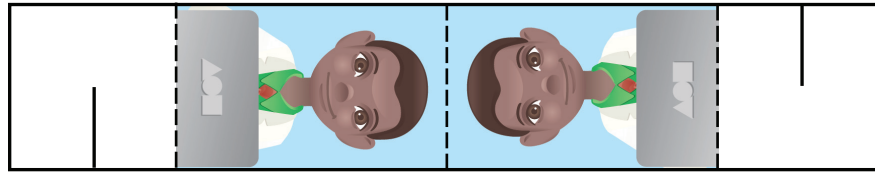
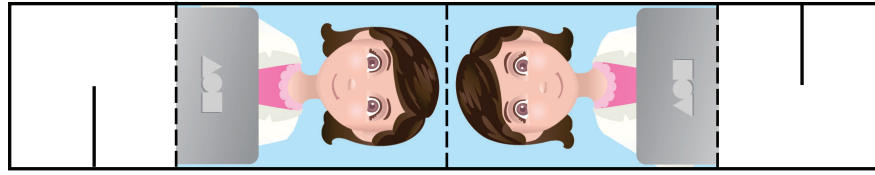
EPIDEMIOLOGIST

BIOINFORMATICIST

LIGHT RAIL

# DIRECTIONS

Print this page on 110lb card stock or white construction paper. Fold and assemble.



# Outbreak Notepad

## Raw Produce AR

Avocados	
Cucumber	
Lettuce	
Onions	
Tomatoes	
Tomato Salsa	

## Undercooked Meats AR

Beef (Chili)	
Beef (Meatballs)	
Beef (Patty)	
Chicken (Grilled)	
Chicken (Shredded)	

## Deli Meats AR

Bacon	
Chorizo	
Ham Cubes	
Hotdogs	
Pepperoni	

## Condiments AR

Cherries	
Fudge Sauce	
Hot Sauce	
Ketchup	
Mayonnaise	
Pickles	
Ranch Dressing	
Tarter Sauce	

## Dairy AR

2% Milk	
Cheese (Cheddar)	
Cheese (Mozzarella)	
Ice-Cream (Chocolate)	
Ice-Cream (Vanilla)	
Whipped Cream	

## Pre-cooked Foods AR

6" Roll	
Buns	
Cola	
Fish Sticks	
Flour Tortillas	
French Fries	
Ice Cream Cones	
Lemonade	
Marinara Sauce	
Orange Juice	
Pinto Beans	
Pot. Chips	
Tater Tots	
Tort. Chips	

### Location (X)

<input type="checkbox"/> Ice Cream Igloo	<input type="checkbox"/> Burrito Barn
<input type="checkbox"/> Hamburger Hamlet	<input type="checkbox"/> School Cafeteria
<input type="checkbox"/> Sub Shack	<input type="checkbox"/> Chicken Coop

### Culprit (X)

<input type="checkbox"/> Dirty Dan	<input type="checkbox"/> Careless Christie
<input type="checkbox"/> Filthy Frieda	<input type="checkbox"/> Lazy Larry
<input type="checkbox"/> Contagious Clark	<input type="checkbox"/> Shortcut Shelley

### Symptoms (✓)

<input type="checkbox"/> Abdominal cramping	<input type="checkbox"/> Muscle aches
<input type="checkbox"/> Diarrhea	<input type="checkbox"/> Nausea
<input type="checkbox"/> Fever	<input type="checkbox"/> Vomiting
<input type="checkbox"/> Headache	

Onset/Duration/Other Notes:

### Lab Tests (✓)

Shape:  Icosahedral    Spherical  
 Rod    Spiral

### Microbes Grow on This Agar:

<input type="checkbox"/> Antibiotics	<input type="checkbox"/> Egg yolk
<input type="checkbox"/> Blood	<input type="checkbox"/> Mannitol salt
<input type="checkbox"/> Chromogenic	<input type="checkbox"/> XLD

### Antibodies

Detect:  Adhesion proteins  
 Capsid proteins  
 Lipopolysaccharides  
 Invasion proteins  
 Flagella proteins

### PCR

Detects:  Alpha toxin gene  
 Capsid gene  
 Flagella gene  
 Oxacillin resistance gene  
 Virulence gene

### Staining:

<input type="checkbox"/> Fluorescent capsid
<input type="checkbox"/> Fluorescent flagella
<input type="checkbox"/> Fluorescent ribosomes
<input type="checkbox"/> Gram negative (pink or red colonies)
<input type="checkbox"/> Gram positive (purple or blue colonies)

Suspected Pathogen:

Please us other side for Notes

Outbreak Notepad

# Outbreak Notepad

## Raw Produce AR

Avocados	
Cucumber	
Lettuce	
Onions	
Tomatoes	
Tomato Salsa	

## Undercooked Meats AR

Beef (Chili)	
Beef (Meatballs)	
Beef (Patty)	
Chicken (Grilled)	
Chicken (Shredded)	

## Deli Meats AR

Bacon	
Chorizo	
Ham Cubes	
Hotdogs	
Pepperoni	

## Condiments AR

Cherries	
Fudge Sauce	
Hot Sauce	
Ketchup	
Mayonnaise	
Pickles	
Ranch Dressing	
Tarter Sauce	

## Dairy AR

2% Milk	
Cheese (Cheddar)	
Cheese (Mozzarella)	
Ice-Cream (Chocolate)	
Ice-Cream (Vanilla)	
Whipped Cream	

## Pre-cooked Foods AR

6" Roll	
Buns	
Cola	
Fish Sticks	
Flour Tortillas	
French Fries	
Ice Cream Cones	
Lemonade	
Marinara Sauce	
Orange Juice	
Pinto Beans	
Pot. Chips	
Tater Tots	
Tort. Chips	

### Location (X)

<input type="checkbox"/> Ice Cream Igloo	<input type="checkbox"/> Burrito Barn
<input type="checkbox"/> Hamburger Hamlet	<input type="checkbox"/> School Cafeteria
<input type="checkbox"/> Sub Shack	<input type="checkbox"/> Chicken Coop

### Culprit (X)

<input type="checkbox"/> Dirty Dan	<input type="checkbox"/> Careless Christie
<input type="checkbox"/> Filthy Frieda	<input type="checkbox"/> Lazy Larry
<input type="checkbox"/> Contagious Clark	<input type="checkbox"/> Shortcut Shelley

### Symptoms (✓)

<input type="checkbox"/> Abdominal cramping	<input type="checkbox"/> Muscle aches
<input type="checkbox"/> Diarrhea	<input type="checkbox"/> Nausea
<input type="checkbox"/> Fever	<input type="checkbox"/> Vomiting
<input type="checkbox"/> Headache	

Onset/Duration/Other Notes:

### Lab Tests (✓)

Shape:  Icosahedral    Spherical  
 Rod    Spiral

### Microbes Grow on This Agar:

<input type="checkbox"/> Antibiotics	<input type="checkbox"/> Egg yolk
<input type="checkbox"/> Blood	<input type="checkbox"/> Mannitol salt
<input type="checkbox"/> Chromogenic	<input type="checkbox"/> XLD

### Antibodies

Detect:  Adhesion proteins  
 Capsid proteins  
 Lipopolysaccharides  
 Invasion proteins  
 Flagella proteins

### PCR

Detects:  Alpha toxin gene  
 Capsid gene  
 Flagella gene  
 Oxacillin resistance gene  
 Virulence gene

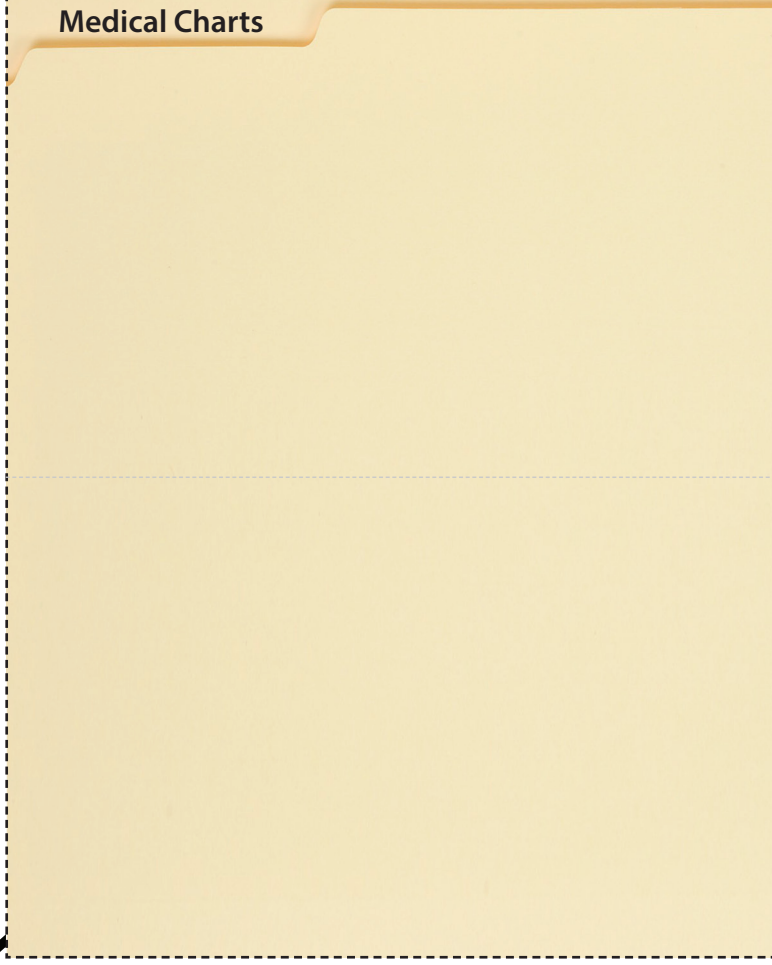
### Staining:

<input type="checkbox"/> Fluorescent capsid
<input type="checkbox"/> Fluorescent flagella
<input type="checkbox"/> Fluorescent ribosomes
<input type="checkbox"/> Gram negative (pink or red colonies)
<input type="checkbox"/> Gram positive (purple or blue colonies)

Suspected Pathogen:

Please us other side for Notes

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards .



<b>Name</b>	Mira Scope				
<b>Height</b>	5'4"	<b>Weight</b>	109	<b>Gender</b>	Female
<b>Symptoms</b>					
Nausea					
Intense abdominal cramping					
Watery diarrhea					
<b>Temperature</b>	99.3F				
<b>Blood pressure</b>	127/76				
<b>Description</b>	Went off campus for lunch the previous day. Symptoms began at 3:00 a.m. the following day.				
<b>Follow-up:</b>	All symptoms last about 24 hours				

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards .



<b>Name</b>	Petyr Dish	
<b>Height</b>	5'10"	<b>Weight</b> 197
<b>Gender</b>	Male	
<b>Symptoms</b>	Fever Vomiting Nausea Muscle Aches	
<b>Temperature</b>	103.2F	
<b>Blood pressure</b>	130/76	
<b>Description</b>	Symptoms started at 9:00 a.m. Had to run to restroom during 2nd period, experiencing diarrhea. Symptoms started during football practice that afternoon.	
<b>Follow-up:</b>	Went off campus for lunch the previous day.	



<b>Name</b>	Sal Ivary	
<b>Height</b>	5'7"	<b>Weight</b> 167
<b>Gender</b>	Male	
<b>Symptoms</b>	Fever Headache Vomiting Nausea Abdominal cramping Diarrhea	
<b>Temperature</b>	102.8F	
<b>Blood pressure</b>	128/79	
<b>Description</b>	Stayed home from school. Around 2:00 p.m., reported the onset of vomiting and diarrhea.	
<b>Follow-up:</b>	Went off campus for lunch the previous day.	

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards .



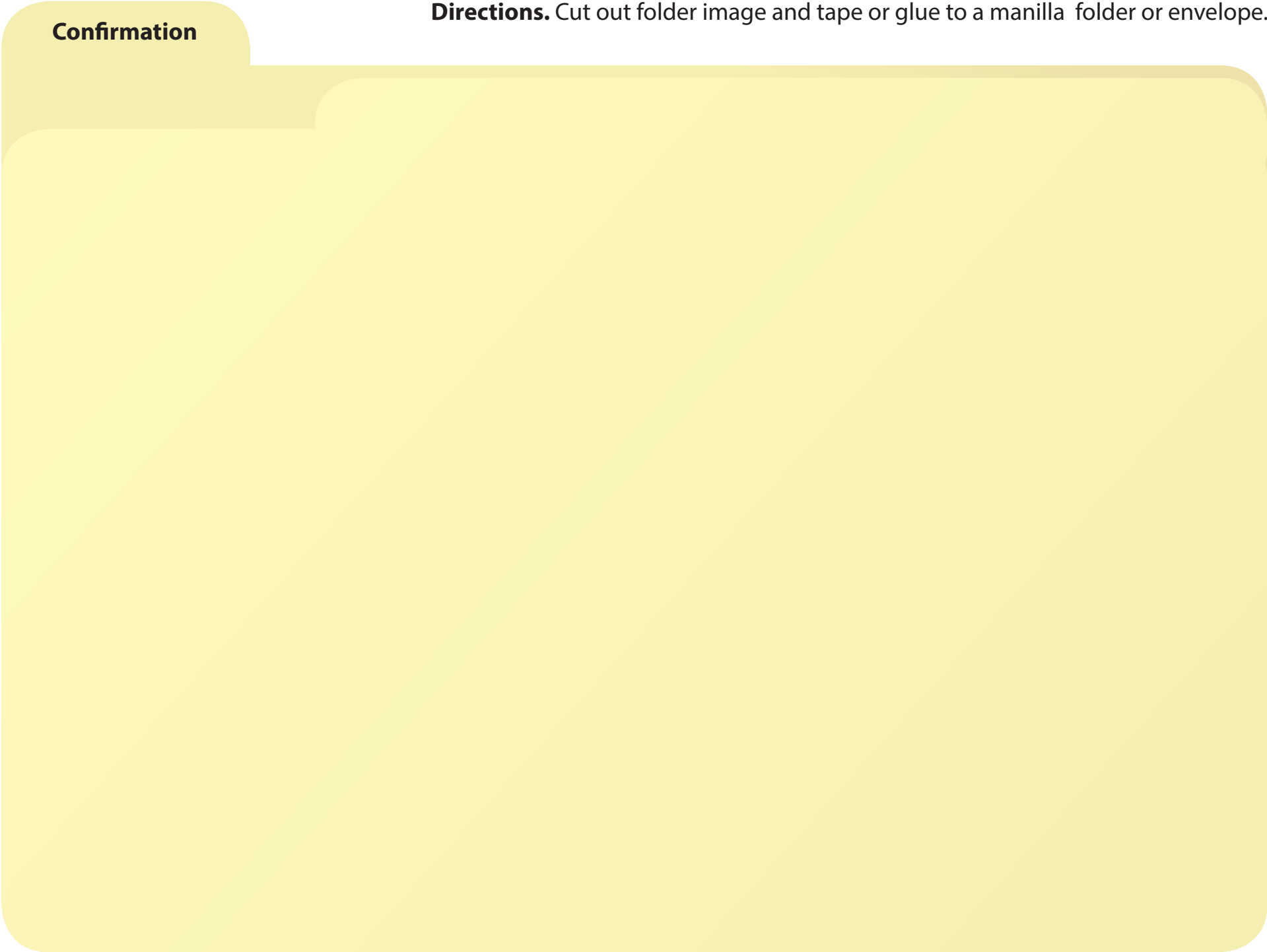
<b>Name</b>	Perry Stalsis	
<b>Height</b>	6'1"	<b>Weight</b> 189
<b>Gender</b>	Male	
<b>Symptoms</b>	Feeling feverish Stomach cramps	
<b>Temperature</b>	102.2F	
<b>Blood pressure</b>	127/68	
<b>Description</b>	Stayed home from school. Around 2:00 p.m., reported the onset of vomiting and diarrhea.	
<b>Follow-up:</b>	Went off campus for lunch the previous day.	



<b>Name</b>	Pam Kreyiss	
<b>Height</b>	5'6"	<b>Weight</b> 117
<b>Gender</b>	Female	
<b>Symptoms</b>	Fever Vomiting Nausea Severe stomach cramps Diarrhea	
<b>Temperature</b>	103.2F	
<b>Blood pressure</b>	125/75	
<b>Description:</b>	At dinner time, reported a sudden onset of severe stomach cramps, fever, nausea, vomiting, and diarrhea.	
<b>Follow-up:</b>	Went off campus for lunch the previous day.	

**Directions.** Cut out folder image and tape or glue to a manilla folder or envelope.

**Confirmation**



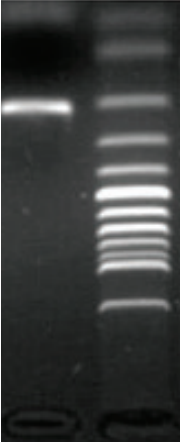


**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



## Lab Test Card

# Molecular Tests



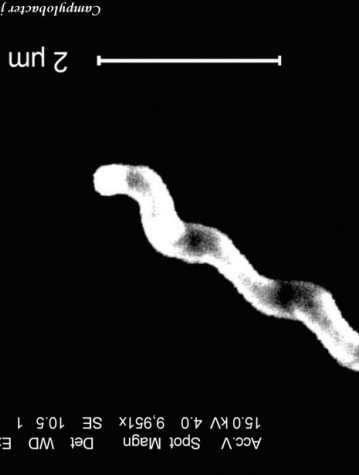
Polymerase Chain Reaction detects

	+	-
324 base-pair alpha toxin gene		
1,590 base-pair virulence gene		
213 base-pair viral capsid gene		
204 base-pair flagella gene		
585 base-pair oxacillin resistance gene		



## Lab Test Card

# Microscopy Tests

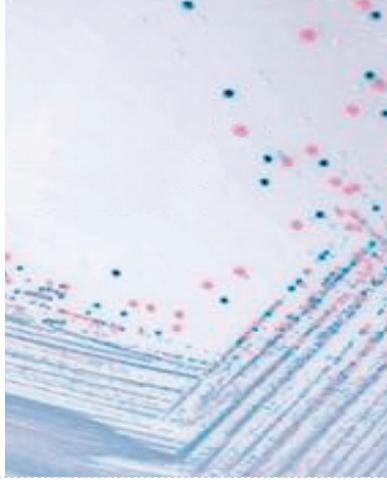


Scanning electron microscopy shows:

Shape Viewed Under Microscope	Icosahedral	
	Rod	
	Spherical	
	Spiral	

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.

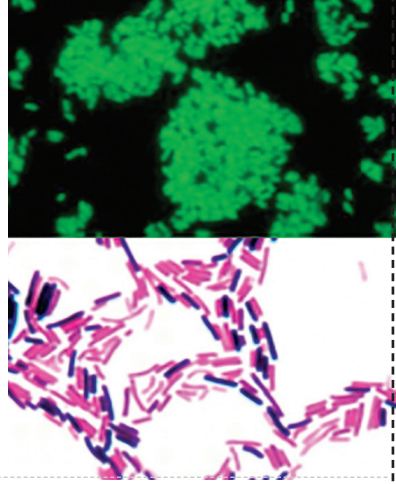
## Lab Test Card Selective Culture Media



Bacteria grow on the following agar:

Antibiotics	
Blood	
Chromogenic	
Egg Yolk	
Mannitol Salt	
Xylose lysine deoxycholate	

## Lab Test Card Staining & Microscopy Test



Staining detects the following molecules:

Fluorescent Capsid	
Fluorescent Flagella	
Fluorescent Ribosomes	
Gram Negative (pink/red)	
Gram Positive (purple/blue)	

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



## Lab Test Card Antibody Tests



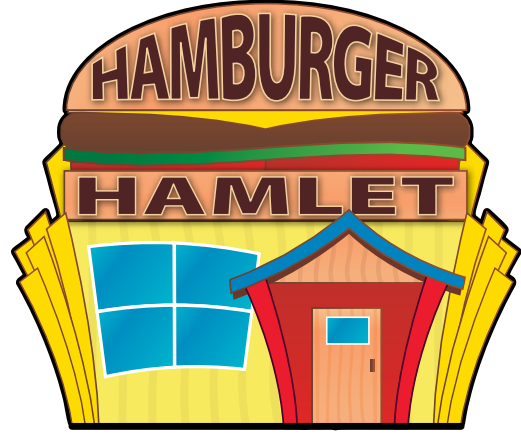
Antibodies detect the following molecules:

Adhesion Proteins	
Capsid Proteins	
Invasion Proteins	
Flagella Proteins	
Lipopolysaccharides	

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



Location  
Card



Location  
Card

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



Location  
Card

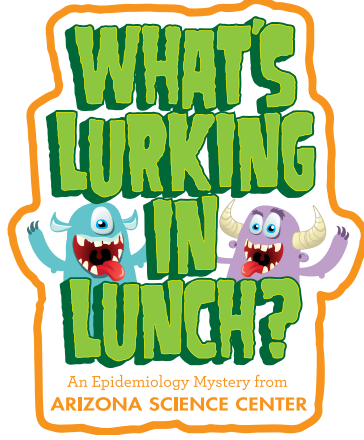


Location  
Card

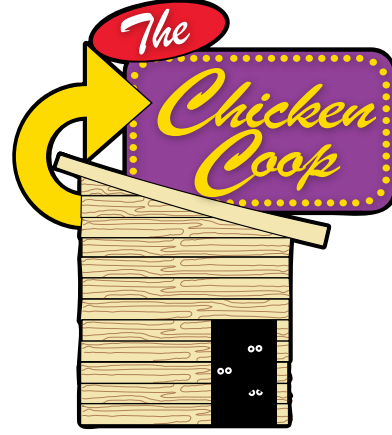
**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



**School  
Cafeteria**



**Location  
Card**



**Location  
Card**



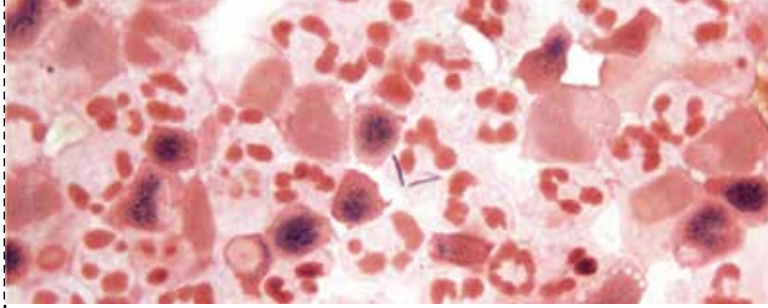
**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



**Clostridium Perfringens**



Pathogen  
Card

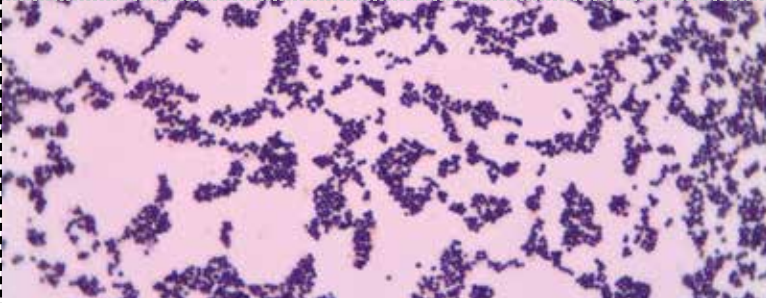


**Listeria Monocytogenes**



Pathogen  
Card

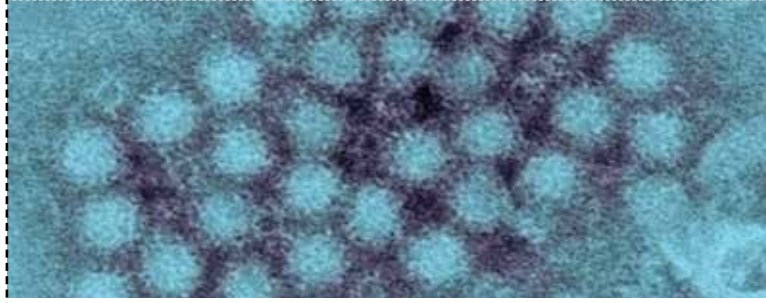
**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



**Staphylococcus Aureus**



**Pathogen  
Card**



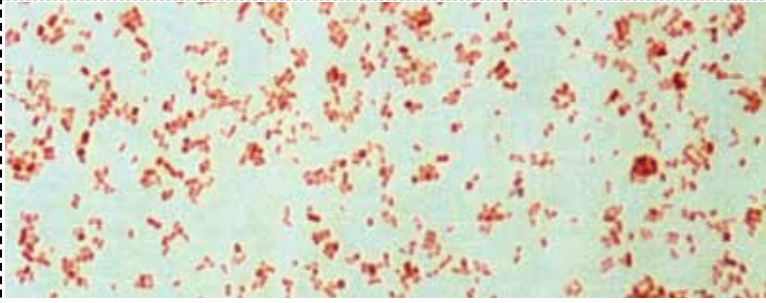
**Norovirus**



**Pathogen  
Card**



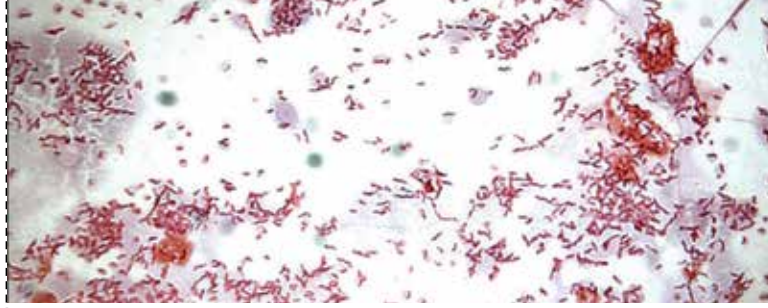
**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



**Salmonella**



**Pathogen  
Card**



**Campylobacter Jejuni**



**Pathogen  
Card**

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



**Dirty Dan**  
failed his food-handlers' exam several times.  
He still doesn't wash his hands for 20 seconds with soapy water after using the restroom, before handling food or after handling uncooked meat, eggs and seafood.



Culprit Card



**Filthy Frieda**  
She still forgets to wash utensils and surfaces (like cutting boards) with hot, soapy water between ingredients; especially after cutting raw meat, poultry or seafood. She rarely sanitizes cutting boards and counters with a dilute bleach solution.



Culprit Card

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



**Contagious Clark**  
has a large family to feed and cannot afford to miss work . He comes to work sick and doesn't cover his mouth when he coughs or sneezes, or after blowing his nose.



Culprit Card



**Careless Christie**  
She still doesn't refrigerate or freeze perishables, prepared foods and leftovers within two hours. She leaves food out at room temperature. She doesn't reheat pre-cooked foods to the proper temperature.



Culprit Card

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



**Lazy Larry**  
failed his food-handlers' exam several times. He doesn't replace and wash dish towels and sponges often to prevent the spread of harmful bacteria throughout the kitchen.



Culprit Card



**Shortcut Shelley**  
failed her food-handlers' exam several times. She doesn't cook food to the proper internal temperature by checking doneness with a thermometer.



Culprit Card

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



**Undercooked Meats**

### Undercooked Meats

	# Who Got Sick	# Who Ate
Beef (Chili)		
Beef (Meatballs)		
Beef (Patty)		
Chicken (Grilled)		
Chicken (Shredded)		



**Dairy**

### Dairy

	# Who Got Sick	# Who Ate
2% Milk		
Cheese (Cheddar)		
Cheese (Mozzarella)		
Ice-Cream (Chocolate)		
Ice-Cream (Vanilla)		
Whipped Cream		

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



Condiments

### Condiments

	# Who Got Sick	# Who Ate		# Who Got Sick	# Who Ate
Cherries			Mayonnaise		
Fudge Sauce			Pickles		
Hot Sauce			Ranch Dressing		
Ketchup			Tarter Sauce		



Raw Produce

### Raw Produce

	# Who Got Sick	# Who Ate
Avocados		
Cucumber		
Lettuce		
Onions		
Tomatoes		
Tomato Salsa		

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



**Pre-cooked Foods**

**Pre-Cooked Foods**

	# Who Got Sick	# Who Ate		# Who Got Sick	# Who Ate
6" Roll			IC Cones		
Buns			Pot. Chips		
Fish Sticks,			Tater Tots		
Flour Tortillas			Tort. Chips		
French Fries			Mar. Sauce		
Marinara			Cola		
Lemonade			Pinto Beans		
			Orange Juice		



**Deli Meats**

**Deli Meats**

	# Who Got Sick	# Who Ate
Bacon		
Chorizo		
Ham		
Hotdogs		
Pepperoni		



**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



### **Undercooked Meats Reveal Card**

Check the box corresponding to the contaminated food.

Beef (Chili)	<input type="checkbox"/>
Beef (Meatballs)	<input type="checkbox"/>
Beef (Patty)	<input type="checkbox"/>
Chicken (Grilled)	<input type="checkbox"/>
Chicken (Shredded)	<input type="checkbox"/>



### **Dairy Reveal Card**

Check the box corresponding to the contaminated food.

2% Milk	<input type="checkbox"/>
Cheese (Cheddar)	<input type="checkbox"/>
Cheese (Mozzarella)	<input type="checkbox"/>
Ice-Cream (Chocolate)	<input type="checkbox"/>
Ice-Cream (Vanilla)	<input type="checkbox"/>
Whipped Cream	<input type="checkbox"/>



**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



### Condiments Reveal Card

Check the box corresponding to the contaminated food.

Cherries	<input type="checkbox"/>	Pickles	<input type="checkbox"/>
Fudge Sauce	<input type="checkbox"/>	Ranch Dressing	<input type="checkbox"/>
Hot Sauce	<input type="checkbox"/>	Tarter Sauce	<input type="checkbox"/>
Ketchup	<input type="checkbox"/>		
Mayonnaise	<input type="checkbox"/>		



### Raw Produce Reveal Card

Check the box corresponding to the contaminated food.

Avocados	<input type="checkbox"/>
Cucumber	<input type="checkbox"/>
Lettuce	<input type="checkbox"/>
Onions	<input type="checkbox"/>
Tomatoes	<input type="checkbox"/>
Tomato Salsa	<input type="checkbox"/>

**DIRECTIONS:** Cut on the dotted lines. Fold in half on solid lines to create cards.



### Pre-Cooked Foods Reveal Card

Check the box corresponding to the contaminated food.

6" Roll	<input type="checkbox"/>	French Fries	<input type="checkbox"/>	Pinto Beans	<input type="checkbox"/>
Buns	<input type="checkbox"/>	Ice Cr Cones	<input type="checkbox"/>	Pot. Chips	<input type="checkbox"/>
Cola	<input type="checkbox"/>	Lemonade	<input type="checkbox"/>	Tater Tots	<input type="checkbox"/>
Fish Sticks	<input type="checkbox"/>	Marinara	<input type="checkbox"/>	Tort. Chips	<input type="checkbox"/>
Flour Tortillas	<input type="checkbox"/>	OJ	<input type="checkbox"/>		



### Deli Meats Reveal Card

Check the box corresponding to the contaminated food.

Bacon	<input type="checkbox"/>
Chorizo	<input type="checkbox"/>
Ham Cubes	<input type="checkbox"/>
Hotdogs	<input type="checkbox"/>
Pepperoni	<input type="checkbox"/>

