### Set-up

- Team 1: Pathogen Attacks cards: shuffled, face down
- Team 2: Response cards: face up in play area

Experts get Symptom boards

Each team has at least one expert in each pathogen

### Instructions

#### On your team’s turn

1. Draw a **Pathogen Attacks Card** and read it aloud. Set a 60-second timer.

2. Match to the correct **Response Card** in the play area (be sure to match with the correct type—e.g., Ouch or Immune Ninja).

3. Place the matched pair (Pathogen Attacks + Response) onto the matching symptom space on the correct **Symptom board**.

**Challenging:** If the cards played at the end of the 60 seconds are incorrectly matched or placed on the wrong symptom, the other team can challenge. To challenge, use evidence to show your teacher that the match is incorrect, and describe the correct match. If the challenging team is correct, they take the cards; if they’re incorrect, the challenging team loses 1 point.

**NOTE:** Unless you are being challenged, you may adjust cards on your boards at any time.

Play ends when the second-to-last Pathogen Attacks Card has been matched. Flag down your teacher to check the final matches. No points for mismatches. Tie breaker goes to the team who was never correctly challenged.

Updated May 7, 2020
SYSTEM STRIKES BACK!
Expels built-up mucus from the airway

SYSTEM STRIKES BACK!
Goblet cells make extra mucus to protect against viruses

IMMUNE NINJA!
Brain sets body temperature higher to fight the infection

OUCH!
Infected throat cells die

IMMUNE NINJA!
Muscles are inflamed because of the immune response

OUCH!
Nutrient & water absorption decrease leaving watery waste

OUCH!
Kidneys can’t clean the blood

SYSTEM STRIKES BACK!
Stomach forcefully ejects contents

IMMUNE NINJA!
Immune cells rush to small intestine and cause swelling

OUCH!
Dead blood vessel cells cause clogs in the brain

IMMUNE NINJA!
Immune system kills leaf cells to contain the spread

OUCH!
Vacuoles have less room

OUCH!
Dead cells can’t hold water, so leaves dry out

OUCH!
Damaged vessels in stems can’t support the weight of the plant

SYSTEM STRIKES BACK!
Plant redirects resources to fight the virus
### Summary card for checking matches

<table>
<thead>
<tr>
<th>Condition</th>
<th>Pathogen Attacks!</th>
<th>System Strikes Back!</th>
<th>Immune Ninja!</th>
<th>Ouch!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>Destroys cilia on airway cells</td>
<td>Expels built-up mucus from the airway</td>
<td>Immune system... either/or Dying airway cells...</td>
<td>Infected throat cells die</td>
</tr>
<tr>
<td></td>
<td>PATHOGEN ATTACKS! Cuts through mucus layer to get to cells</td>
<td>SYSTEM STRIKES BACK! Goblet cells make extra mucus to protect against viruses</td>
<td><strong>IMMUNE NINJA!</strong> Brain sets body temperature higher to fight the infection</td>
<td><strong>OUCH!</strong> Muscles are inflamed because of the immune response</td>
</tr>
<tr>
<td>E. Coli</td>
<td>Destroys microvilli to make smooth attachment sites</td>
<td><strong>OUCH!</strong> Nutrient &amp; water absorption decrease leaving watery waste</td>
<td><strong>SYSTEM STRIKES BACK!</strong> Stomach forcefully ejects contents</td>
<td><strong>OUCH!</strong> Dead blood vessel cells cause clogs in the brain</td>
</tr>
<tr>
<td>Diarrhea</td>
<td><strong>SYSTEM STRIKES BACK!</strong> Goblet cells make extra mucus to protect against viruses</td>
<td><strong>OUCH!</strong> Kidneys can’t clean the blood</td>
<td><strong>SYSTEM STRIKES BACK!</strong> Immune cells rush to small intestine and cause swelling</td>
<td></td>
</tr>
<tr>
<td>Kidney Failure</td>
<td><strong>PATHOGEN ATTACKS!</strong> Releases toxin that damages blood vessels in the kidneys</td>
<td><strong>OUCH!</strong></td>
<td><strong>IMMUNE NINJA!</strong></td>
<td></td>
</tr>
<tr>
<td>Vomiting</td>
<td><strong>PATHOGEN ATTACKS!</strong> Steals food from the intestine and multiplies</td>
<td><strong>SYSTEM STRIKES BACK!</strong></td>
<td><strong>IMMUNE NINJA!</strong></td>
<td></td>
</tr>
<tr>
<td>Abdominal Pain</td>
<td><strong>PATHOGEN ATTACKS!</strong> Invading bacteria and toxins signal the immune system</td>
<td><strong>OUCH!</strong></td>
<td><strong>OUCH!</strong></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td><strong>PATHOGEN ATTACKS!</strong> Releases toxin that damages blood vessels in the brain</td>
<td><strong>SYSTEM STRIKES BACK!</strong></td>
<td><strong>OUCH!</strong></td>
<td></td>
</tr>
<tr>
<td>Dark Spots</td>
<td><strong>PATHOGEN ATTACKS!</strong> Spreads through tiny tunnels to infect nearby leaf cells</td>
<td><strong>IMMUNE NINJA!</strong> Immune system kills leaf cells to contain the spread</td>
<td><strong>OUCH!</strong> Vacuoles have less room</td>
<td></td>
</tr>
<tr>
<td>Wilting</td>
<td><strong>PATHOGEN ATTACKS!</strong> Hijacks cell to make more viruses until the leaf cell is packed</td>
<td><strong>OUCH!</strong></td>
<td><strong>OUCH!</strong></td>
<td></td>
</tr>
<tr>
<td>Leaf Drop</td>
<td><strong>PATHOGEN ATTACKS!</strong> Kills heavily infected leaf cells as it spreads</td>
<td><strong>OUCH!</strong> Dead cells can’t hold water, so leaves dry out</td>
<td><strong>OUCH!</strong> Damaged vessels in stems can’t support the weight of the plant</td>
<td></td>
</tr>
<tr>
<td>Plant Collapse</td>
<td><strong>PATHOGEN ATTACKS!</strong> Spreads through the plant tubes that carry water</td>
<td><strong>SYSTEM STRIKES BACK!</strong> Plant redirects resources to fight the virus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slow Growth</td>
<td><strong>PATHOGEN ATTACKS!</strong> Spreads through the plant, taking over cells</td>
<td><strong>System Strikes Back!</strong></td>
<td><strong>SYSTEM STRIKES BACK!</strong></td>
<td></td>
</tr>
</tbody>
</table>