

Name: _____

Collisions Username: _____

Class: _____

Intermolecular Forces Quest

Now that you have completed the Intermolecular Forces Challenges, you are ready to conduct this Intermolecular Forces Quest.

MISSION 1. GATHER YOUR INTEL

Use your Collisions gameplay experience to gather the following intel:

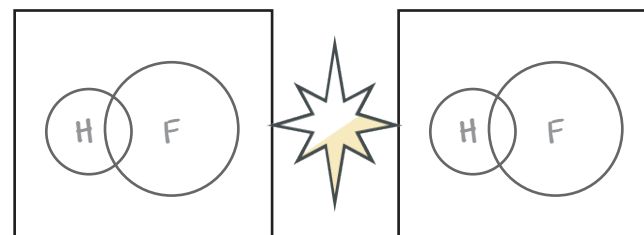
1. Write the chemical formula of the target molecule (or the atomic symbol of the target atom) in both boxes.

MISSION 2. EXPOSE THE DETAILS

Use your expertise to expose the following information.

Sample Level

Target 1



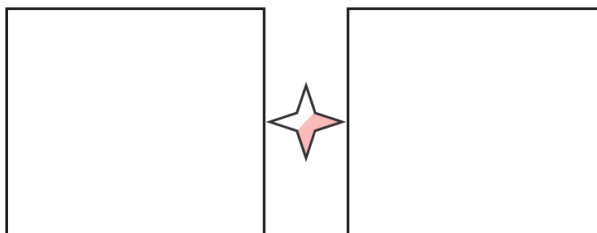
	Target 1
Molecular (or atomic) name	Hydrogen Fluoride
Molecular shape*	Linear
Symmetrical or asymmetrical molecule*	Asymmetrical
Bond types found in the molecule*	<input type="checkbox"/> Nonpolar Bond(s) <input type="checkbox"/> Polar Bond(s) <input checked="" type="checkbox"/> Very Polar Bond(s)
Polar or nonpolar molecule*	Polar Molecule
Central atom of molecule*	N/A
Number of lone pairs in central atom*	None (no central atom)
Type of IMF	Hydrogen Bond
Permanent or induced dipole	Permanent Dipole
Boiling point	61.7 ° F (19.5°C)

**If Applicable*

Intermolecular Forces - Challenge Level 1

MISSION 1. EXPOSE THE DETAILS

Target 1



MISSION 2. EXPOSE THE DETAILS

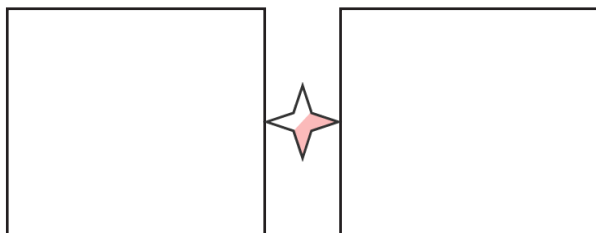
Target 1	
Molecular (or atomic) name	
Molecular shape*	
Symmetrical or asymmetrical molecule*	
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*	
Central atom of molecule*	
Number of lone pairs in central atom*	
Type of IMF	
Permanent or induced dipole	
Boiling point	

**If Applicable*

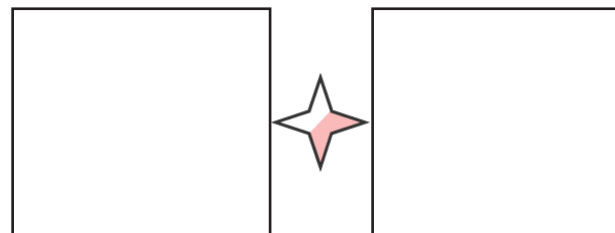
Intermolecular Forces - Challenge Level 2

MISSION 1. EXPOSE THE DETAILS

Target 1



Target 2



MISSION 2. EXPOSE THE DETAILS

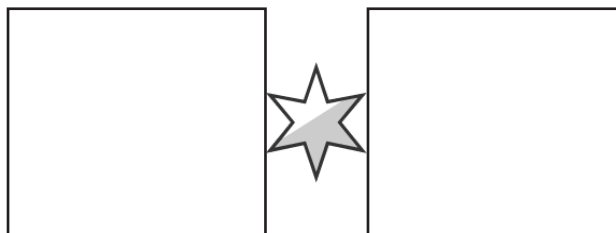
	Target 1	Target 2
Molecular (or atomic) name		
Molecular shape*		
Symmetrical or asymmetrical molecule*		
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*		
Central atom of molecule*		
Number of lone pairs in central atom*		
Type of IMF		
Permanent or induced dipole		
Boiling point		

**If Applicable*

Intermolecular Forces - Challenge Level 3

MISSION 1. EXPOSE THE DETAILS

Target 1



MISSION 2. EXPOSE THE DETAILS

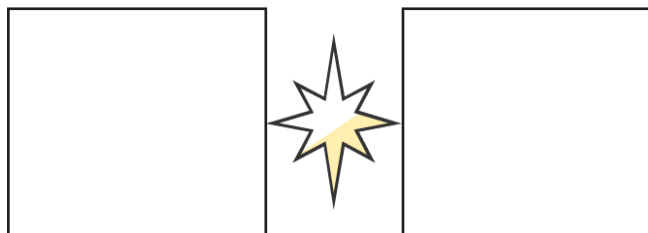
Target 1	
Molecular (or atomic) name	
Molecular shape*	
Symmetrical or asymmetrical molecule*	
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*	
Central atom of molecule*	
Number of lone pairs in central atom*	
Type of IMF	
Permanent or induced dipole	
Boiling point	

**If Applicable*

Intermolecular Forces - Challenge Level 4

MISSION 1. EXPOSE THE DETAILS

Target 1



MISSION 2. EXPOSE THE DETAILS

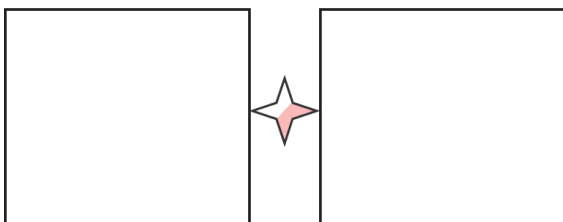
Target 1	
Molecular (or atomic) name	
Molecular shape*	
Symmetrical or asymmetrical molecule*	
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*	
Central atom of molecule*	
Number of lone pairs in central atom*	
Type of IMF	
Permanent or induced dipole	
Boiling point	

**If Applicable*

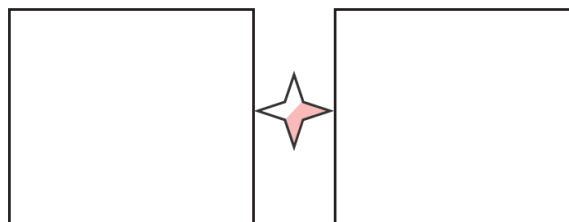
Intermolecular Forces - Challenge Level 5

MISSION 1. EXPOSE THE DETAILS

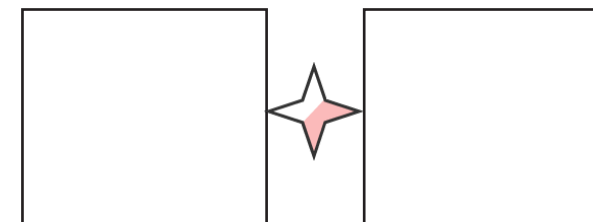
Target 1



Target 2



Target 3



MISSION 2. EXPOSE THE DETAILS

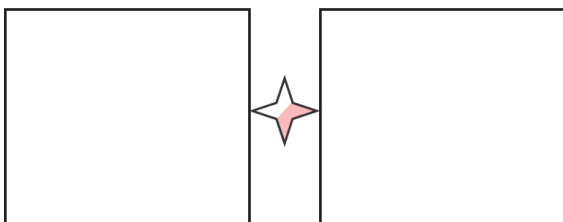
	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

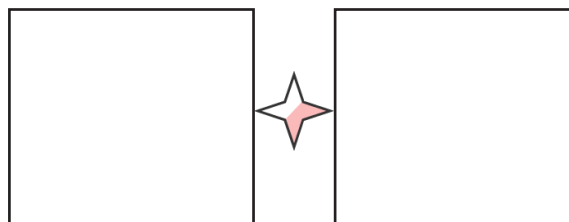
Intermolecular Forces - Challenge Level 6

MISSION 1. EXPOSE THE DETAILS

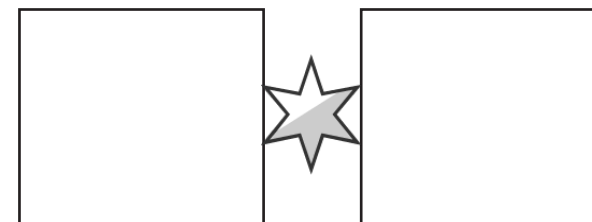
Target 1



Target 2



Target 3



MISSION 2. EXPOSE THE DETAILS

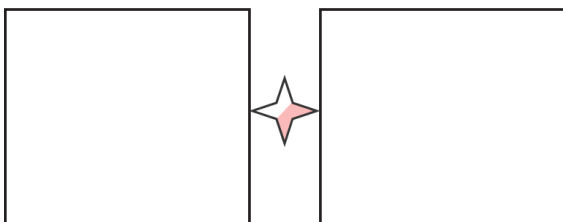
	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

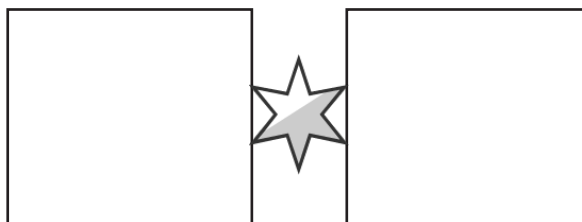
Intermolecular Forces - Challenge Level 7

MISSION 1. EXPOSE THE DETAILS

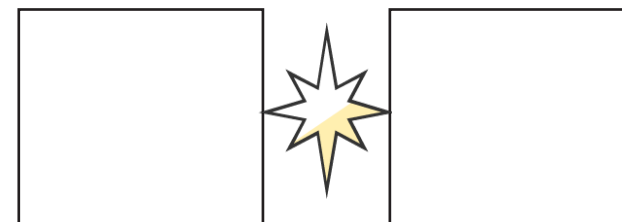
Target 1



Target 2



Target 3



MISSION 2. EXPOSE THE DETAILS

	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

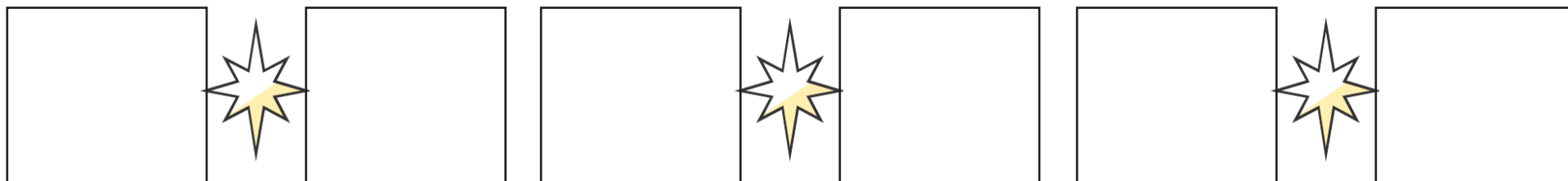
Intermolecular Forces - Challenge Level 8

MISSION 1. EXPOSE THE DETAILS

Target 1

Target 2

Target 3



MISSION 2. EXPOSE THE DETAILS

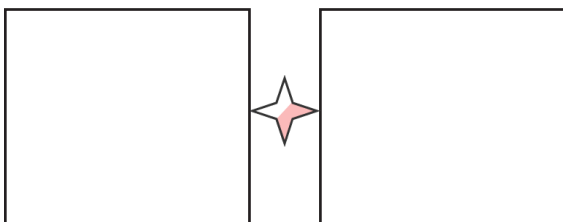
	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

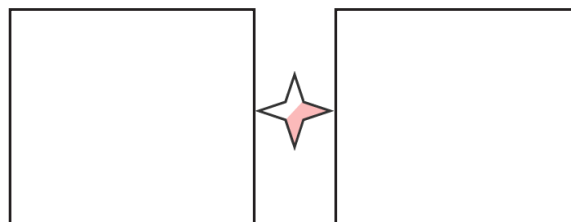
Intermolecular Forces - Challenge Level 9

MISSION 1. EXPOSE THE DETAILS

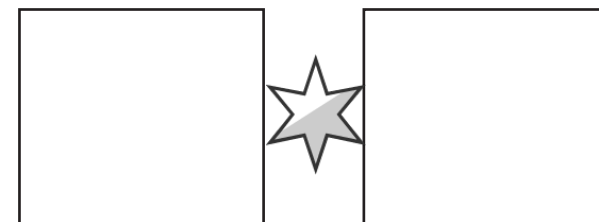
Target 1



Target 2



Target 3



MISSION 2. EXPOSE THE DETAILS

	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

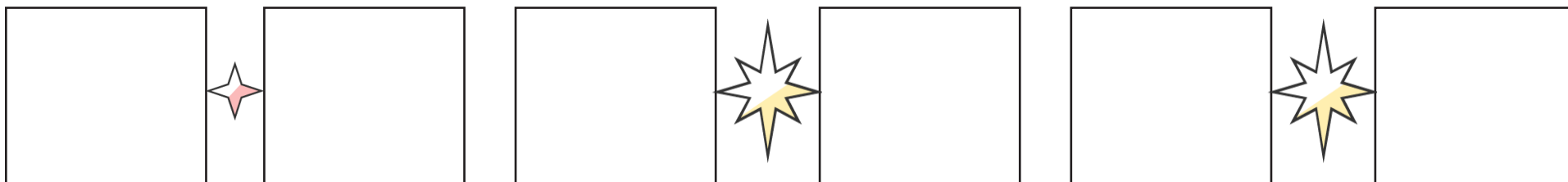
Intermolecular Forces - Challenge Level 10

MISSION 1. EXPOSE THE DETAILS

Target 1

Target 2

Target 3



MISSION 2. EXPOSE THE DETAILS

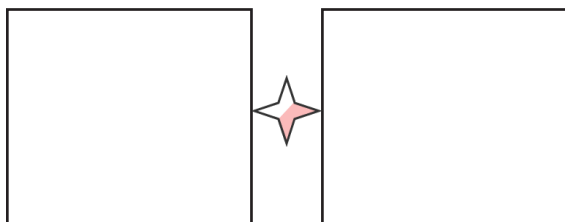
	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

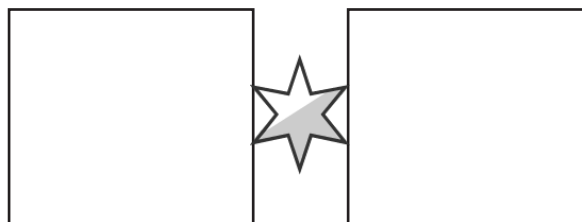
Intermolecular Forces - Challenge Level 11

MISSION 1. EXPOSE THE DETAILS

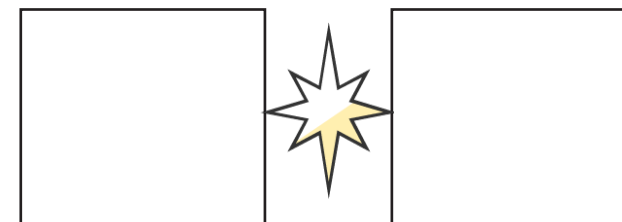
Target 1



Target 2



Target 3



MISSION 2. EXPOSE THE DETAILS

	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

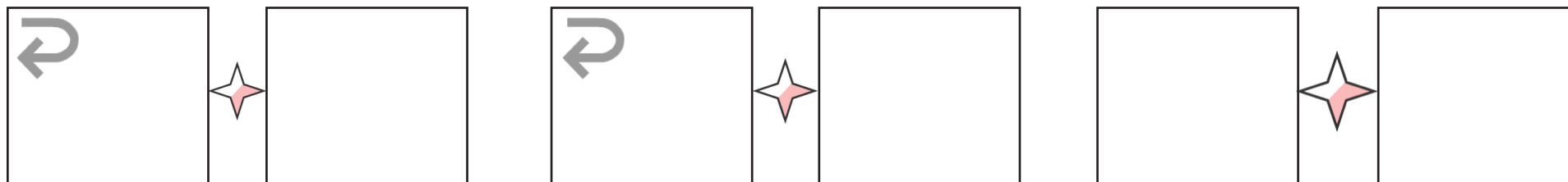
Atoms to IMFs - Connected Level 1

MISSION 1. EXPOSE THE DETAILS

Target 1

Target 2

Target 3



MISSION 2. EXPOSE THE DETAILS

	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

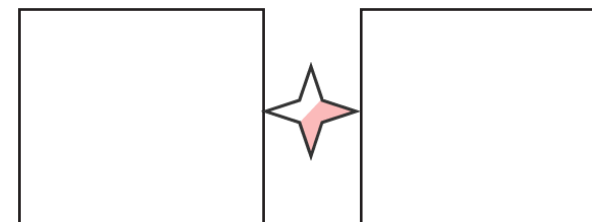
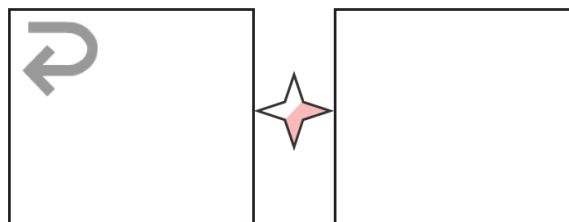
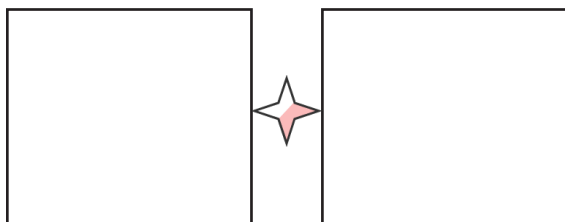
Atoms to IMFs - Connected Level 2

MISSION 1. EXPOSE THE DETAILS

Target 1

Target 2

Target 3



MISSION 2. EXPOSE THE DETAILS

	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

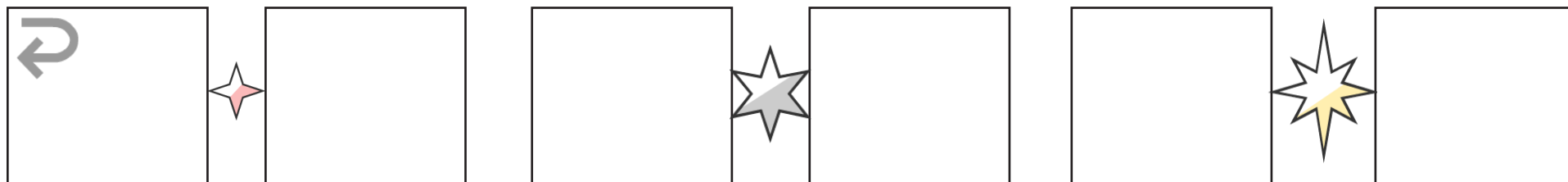
Atoms to IMFs - Connected Level 3

MISSION 1. EXPOSE THE DETAILS

Target 1

Target 2

Target 3



MISSION 2. EXPOSE THE DETAILS

	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	<input type="checkbox"/> Nonpolar Bond(s) <input type="checkbox"/> Polar Bond(s) <input type="checkbox"/> Very Polar Bond(s)	<input type="checkbox"/> Nonpolar Bond(s) <input type="checkbox"/> Polar Bond(s) <input type="checkbox"/> Very Polar Bond(s)	<input type="checkbox"/> Nonpolar Bond(s) <input type="checkbox"/> Polar Bond(s) <input type="checkbox"/> Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

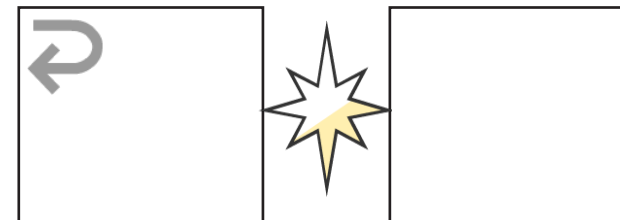
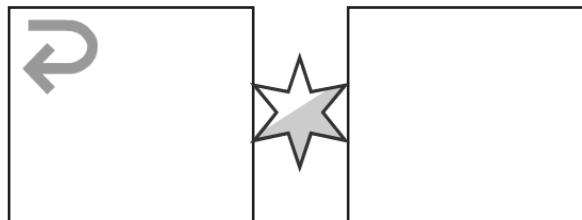
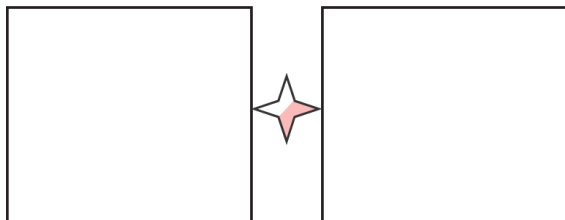
Covalent Bonding to IMFs - Connected Level 1

MISSION 1. EXPOSE THE DETAILS

Target 1

Target 2

Target 3



MISSION 2. EXPOSE THE DETAILS

	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

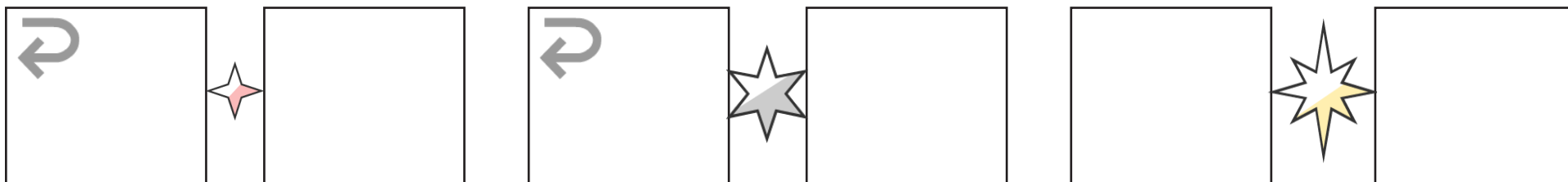
Covalent Bonding to IMFs - Connected Level 2

MISSION 1. EXPOSE THE DETAILS

Target 1

Target 2

Target 3



MISSION 2. EXPOSE THE DETAILS

	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*

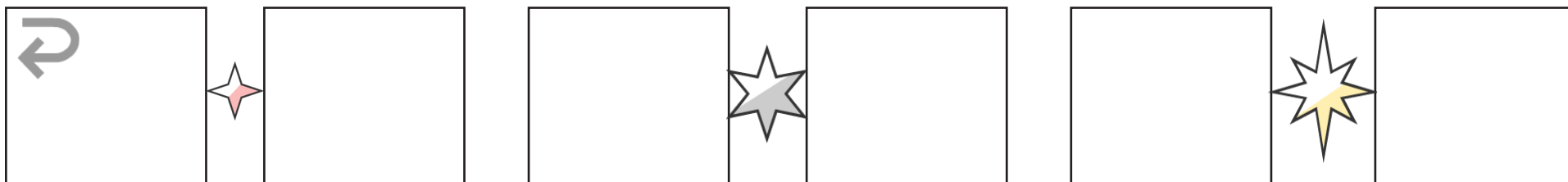
Covalent bonding to IMFs - Connected Level 3

MISSION 1. EXPOSE THE DETAILS

Target 1

Target 2

Target 3



MISSION 2. EXPOSE THE DETAILS

	Target 1	Target 2	Target 3
Molecular (or atomic) name			
Molecular shape*			
Symmetrical or asymmetrical molecule*			
Bond types found in the molecule*	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)	___ Nonpolar Bond(s) ___ Polar Bond(s) ___ Very Polar Bond(s)
Polar or nonpolar molecule*			
Central atom of molecule*			
Number of lone pairs in central atom*			
Type of IMF			
Permanent or induced dipole			
Boiling point			

**If Applicable*