

GUIDED READING ACTIVITY

Sols 11–16	Sols 7–10	Sol 6	Challenge(s) Watney faced during this time	Watney's solutions to challenges	Science related to the challenges/solutions

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		Challenge(s) Watney faced during this time	Watney's solutions to challenges	Science related to the challenges/solutions
Sols 17–29				
Sols 30–37				

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	Challenge(s) Watney faced during this time	Watney's solutions to challenges	Science related to the challenges/solutions
Sol 6	<ul style="list-style-type: none"> 1) Puncture in space suit. 2) Crew leaves him behind on Mars when they think he's dead. 	<ul style="list-style-type: none"> 1) His blood forms a weak seal for hole when he's facedown. Uses breach kit when conscious to seal hole. 2) No solution yet. 	<ul style="list-style-type: none"> 1) Evaporation of water in blood. Use of sticky resin in breach kit.
Sols 7–10	<ul style="list-style-type: none"> 1) Loss of power from solar cells. 2) No communication with Earth. 3) Eventual lack of food before rescue. 	<ul style="list-style-type: none"> 1) Sweeps sand off solar cell array. 2) No solution yet. 3) Has some Earth soil. Considers its use. 	<ul style="list-style-type: none"> 1) Sunlight can now reach cells. 2) Needs electromagnetic waves to reach Earth. 3) Needs bacterial activity in soil.
Sols 11–16	<ul style="list-style-type: none"> 1) Needs more "crop-able" soil. 2) Needs edible crops. 	<ul style="list-style-type: none"> 1) Collects biomatter—food leftovers, feces. Brings in soil from Mars. 2) Locates peas, beans, potatoes in supplies to grow. 	<ul style="list-style-type: none"> 1) Add Mars soil to Earth soil; biomatter increases bacterial activity. 2) Agriculturally viable products to grow.

INSTRUCTOR

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Sols 17–29	1) Not enough food, even if grow potatoes. 2) Needs water. 3) Needs to grow potatoes more quickly.	1) No solution yet. 2) No solution yet. 3) Sets Hab temperature higher.	1) Calorie needs for human body. 2) Need of water by plants. 3) Increased temperature for quicker germination.
Sols 30–37	1) Needs water. 2) Unreacted hydrogen gas in air.	1) Can collect CO ₂ with MAV and use oxygenator to remove O ₂ . Use hydrazine for H ₂ . 2) Nothing yet.	1) Protective equipment while working. Use of iridium catalyst. H ₂ combustion to make water vapor. Exothermic reaction. 2) Explosive combustion.

INSTRUCTOR