

MISSION POSSIBLE

Sample Transfer Sequence List – 2017



Exploring the World of Science

No.	Starting Simple Machine	Action/Transfer Description	Ending Simple Machine	Transfer	Pts.
1	-	Plunger is pulled and released, launching ball down ramp; it falls into a cup, pulling down string through pulley.	Pulley	-	100
2	pulley	Pulley is attached to 1st class lever, lifting up lever.	1st class lever	P to L1	50
3	1st class lever	1st class lever has string attached to 2nd class lever.	2nd class lever	-	-
4	2nd class lever	2nd class lever lifts mass up inclined plane.	inclined plane	L2 to IP	50
5	inclined plane	Mass falls off top of inclined plane onto 1st class lever.	1st class lever	IP to L1	50
6	1st class lever	1st class lever lifts mass up inclined plane.	inclined plane	-	-
7	inclined plane	Mass falls off top of inclined plane onto wedge.	wedge	IP to W	50
8	wedge	Wedge separates block from wall, weight has string attached that is wrapped around screw.	screw	W to S	50
9	screw	As screw turns, wedge attached to nut on screw moves, and the wedge separates golf ball from wall.	wedge	S to W	50
10	wedge	Golf ball falls into cup on 3 rd class lever	3 rd class lever	W to L3	50
11	3 rd class lever	String attached to 3 rd class lever is pulled through a pulley system	pulley	L3 to P	50
12	pulley	Pulley is attached to 1st class lever, lifting up lever.	1st class lever	-	-
13	1st class lever	1st class lever lifts mass up inclined plane, mass falls onto wedge.	wedge	L1 to W	50 (50)
14	wedge	Wedge separates two touching Golf balls, one golf ball rolls down ramp and pushes flag up.	-	-	250

Legend: P for pulley; L1 for first class lever; L2 for second class lever; L3 for third class lever; IP for inclined plane; S for screw; W for wedge; WA for wheel and axle

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Notes: Use the Transfer Sequence List template posted on the national website.

All actions (scorable and non-scorable) inside your device must be numbered on the TSL and correspondingly numbered inside the device.

In this TSL it shows that a lever CANNOT be counted for points if it transfers to another lever because points are only awarded for transfers from one Simple Machine Type to a different Simple Machine Type.

Task 3 does not earn points because a simple machine can not transfer to the same type of simple machine.

Tasks 8 and 9 are legal because even though they both use a wedge and a screw, a W to S transfer is unique and different from a S to W transfer, therefore both transfers can count for points.

Tasks 4, 11, and 13 use the 3 different types of lever, earning the 50 bonus points.

Task 12 does not earn any points because a pulley -> 1st class lever had already been used to earn points in task 2.