

ACTIVITY CARDS

SCARF JUGGLING

Activity Name	Description	Forces of Science
PART 1		
Diagonal Toss / Catch 1 Scarf	<p>Hold 1 scarf by pinching it in the center.</p> <ul style="list-style-type: none"> Toss the scarf up and across your body, high above your opposite shoulder. As the scarf falls, catch it in the opposite hand. Toss it back, up and across over the shoulder on the side it started. This creates an X shape. 	Discuss Gravity
Crisscross Toss / Toss Catch / Catch 2 Scarves	<p>Hold 2 scarves, 1 in each hand by pinching them in the center.</p> <ul style="list-style-type: none"> Toss the scarf in your dominant hand up and across, high above your opposite shoulder. As that scarf gets to its highest point, toss the 2nd scarf up and across so that it travels underneath the 1st scarf. Create an X shape. Catch the 1st scarf and then catch the 2nd scarf. After both scarves are caught, they should end up opposite from where they started. 	Discuss Newton's 1 st Law of Motion
Cascade (X Pattern) with 3 Scarves	<p>Hold 3 scarves, 2 in one hand (pinch 1 w/thumb and index finger, the other between the middle and index fingers) and 1 in the other.</p> <ul style="list-style-type: none"> Toss 1 scarf from the hand holding 2. All tosses should be made as described above. As soon as the 1st reaches its peak, toss the scarf from the hand holding only 1. Catch the 1st scarf on its way down. Toss the 3rd scarf under the 2nd. Continue in an X shape. 	Discuss Wind Resistance
PART 2		
2 Columns Left / Right with 1 Hand	<p>Start with 2 scarves in 1 hand.</p> <ul style="list-style-type: none"> Toss 1 scarf straight up, high in front of you. When the 1st scarf is at its peak, toss the 2nd scarf straight up to the right of it. Catch the 1st scarf and toss it again in the same column as it was first tossed. Continue alternating tosses with 2 scarves and 1 hand. Practice in your dominant hand for several minutes, then try with your non-dominant hand. 	
3 Columns Left / Right / Center	<p>Start with 2 scarves in one hand and 1 scarf in the other.</p> <ul style="list-style-type: none"> From the hand with 2 scarves, toss 1 straight up in the center of your body. When the 1st scarf is at its peak, toss the other 2 scarves straight up to the left and right of the center scarf. Catch the 1st and toss it up again in the center column. Repeat this pattern (1-2-1-2), keeping the scarves in their own columns. 	
4 Columns Left / Left- Center / Right- Center / Right	<p>Start with 2 scarves in each hand (4 scarves total).</p> <ul style="list-style-type: none"> Toss 2 scarves (1 from each hand) straight up in 2 columns, leaving enough room for a column in between. When the first 2 scarves are at their peak, toss the other 2 scarves straight up in the space in between and to the right of the tossed scarves. This will create 4 columns (alternating up/down). Catch the 1st scarves and toss them again in the same columns as before. Continue alternating tosses. 	

Allow students to progress at a comfortable pace.

ACTIVITY CARDS

ADVANCE JUGGLING

Activity Name	Description	Forces of Science
PART 1		
Juggling Balls Cascade	<p>Follow the same progression used for scarf juggling.</p> <ul style="list-style-type: none"> • 1 Ball: Diagonal Toss/Catch • 2 Balls: Crisscross Toss/Toss, Catch/Catch • 3 Balls: Cascade (X Pattern) 	Discuss Gravity
Juggling Rings Cascade	<p>Follow the same progression used for scarf juggling.</p> <ul style="list-style-type: none"> • Note: Release the rings high above the opposite shoulder with a small snap of the wrist. The spin will keep the ring from tilting out of control and make it easier to catch. • 1 Ring: Diagonal Toss/Catch • 2 Ring: Crisscross Toss/Toss, Catch/Catch • 3 Ring: Cascade (X Pattern) 	Discuss Newton's 1 st Law of Motion
Juggling Clubs Cascade	<p>Follow the same progression used for scarf juggling.</p> <ul style="list-style-type: none"> • Note: Hold clubs in the middle of the handles, pointing the top of the club to the floor. Toss above your head with a flip, rotating it 1 full turn toward your body. Catch it on the handle. • 1 Club: Diagonal Toss/Catch • 2 Clubs: Crisscross Toss/Toss, Catch/Catch • 3 Clubs: Cascade (X Pattern) 	Discuss Center of Gravity
PART 2		
1-Handed	<p>Choose either rings, balls, or clubs. Then start with 2 in 1 hand.</p> <ul style="list-style-type: none"> • Toss 1 object straight up, high in front of you. • When the 1st object is at its peak, toss the 2nd one straight up to the right of it. • Catch the 1st object and toss it again in the same column as it was first tossed. Continue alternating tosses with 2 objects and 1 hand. • Practice in your dominant hand for several minutes, then try with your non-dominant hand. 	
3 Columns	<p>Start with 2 objects in 1 hand and 1 object in the other.</p> <ul style="list-style-type: none"> • From the hand with 2 objects, toss 1 straight up in the center of your body. • When the 1st object is at its peak, toss the other 2 straight up to the left and right of the center object. • Catch the 1st and toss it up again in the center column. Repeat this pattern (1-2-1-2), keeping the objects in their own columns. 	
Routine Performance	<p>Create a sequence alternating cascade, 1-handed, and column juggling.</p>	

Search the Web for a billion tricks to add to the collection of challenges.

ACTIVITY CARDS

DIABOLO

Activity Name	Description	Forces of Science
PART 1		
On A Roll	<p>Start with the diabolo in front of you on the floor, positioned to roll side-to-side.</p> <ul style="list-style-type: none"> • Hold sticks in both hands, string looped under the diabolo. • Roll the diabolo from right to left (or left to right). • When ready, lift the diabolo off the floor and continue with a drumstick motion. Control movement with the wrists. • Adjust the sticks in order to keep the diabolo balanced. 	Discuss Newton's 1 st Law of Motion
Accelerate	<p>Start with the diabolo up and spinning on the string.</p> <ul style="list-style-type: none"> • As the diabolo is spinning, wrap the string around it 1 time. • Swing the diabolo up and to the right. At its peak, pull the right stick down toward the left stick (keeping it over the diabolo as it moves). The left stick stays in place. • Repeat this to increase speed. 	Discuss Newton's 2 nd Law of Motion
Turns	<p>Start with the diabolo up and spinning on the string.</p> <ul style="list-style-type: none"> • As the diabolo is spinning, adjust the sticks and string so that the bottom of one stick can just reach the far cup of the diabolo. • Tap the cup gently to make very small turns in the direction that you'd like to face. Tap the cup nearest your body to make small turns back. 	Discuss Newton's 3 rd Law of Motion
PART 2		
Big Sun	<p>The object is to turn your body 360 degrees, bringing the diabolo in a complete circle up and over your head.</p> <p>Start with the diabolo up and spinning on the string.</p> <ul style="list-style-type: none"> • Gently swing the diabolo over to one side. • Keep your arms, wrists, and sticks firm and swing the diabolo in the opposite direction with a full turn of your body. • When you've mastered 1 full turn, try this: stop your body as the diabolo comes down in an arch, allow it to swing up, and as it comes back down, turn 360 again (the opposite direction as the 1st turn). 	
Basic Throw	<p>The object is to toss the diabolo up so that it jumps off of the string and then catch it so it continues to spin back on the string.</p> <p>Start with the diabolo up and spinning on the string.</p> <ul style="list-style-type: none"> • Bring the sticks slightly together to create slack (make the string smile), the diabolo in the center and below the sticks. • Pull the strings out and taught in order to launch the diabolo into the air. • Point one stick at the diabolo and catch it just underneath the stick. • Give with the catch, allowing a little slack (smile) to soften the impact of the diabolo. 	
Throw Start	<p>Hold both sticks in one hand and the diabolo in the other. Hold it by the cup in between your fingertips.</p> <ul style="list-style-type: none"> • Toss the diabolo up with a slight spin, keeping it parallel to the floor. • Catch it in the center of the string and begin the drumstick motion. 	

Search the Web for amazing diabolo demonstration videos.

ACTIVITY CARDS

FLOWER STICKS

Activity Name	Description	Forces of Science
PART 1		
Ground Start	<p>Kneel on the ground with the flower stick in front of you.</p> <ul style="list-style-type: none"> Control sticks should be parallel with the floor. The flower stick should be resting on 1 control stick, with the other end on the floor in between the control sticks. Lift the flower stick upward with the control stick. The top end will follow an arc pathway, falling on the opposite control stick. Continue lifting up on the stick so that it goes back and forth between control sticks. Gradually bring the flower stick up off of the floor. 	Discuss Newton's 1 st Law of Motion
Tick Tock	<p>Begin using a ground or standing start.</p> <ul style="list-style-type: none"> Lift the control sticks up, perpendicular with the floor/ground. As the top control stick lifts up, the bottom control stick should make contact with the bottom of the flower stick. Lift up to reverse the flower stick's position. Tick-tock the flower stick between the 2 control sticks. 	Discuss Newton's 3 rd Law of Motion
Standing Start	<p>Stand with the control sticks parallel to the ground. Lay the flower stick across the top of the control sticks.</p> <ul style="list-style-type: none"> Drop 1 control stick out from underneath the flower stick. As the side rotates down, lift slightly with the stick still in contact with the flower stick. Bring the sticks into position and begin a tick-tock motion. 	Discuss Newton's 2 nd Law of Motion
PART 2		
Basic Flip	<p>Get ready by finding a controlled tick-tock rhythm.</p> <ul style="list-style-type: none"> As the flower stick comes into contact with the control stick in your dominant hand, lift straight up with increased force and speed. Move the other control stick down and to the outside of your body to catch the flower stick. Continue to tick-tock the flower stick after it's caught. 	
Top Idle	<p>Get ready by finding a controlled tick-tock rhythm.</p> <ul style="list-style-type: none"> Contact the flower stick just above center and push it up to tick-tock back to the other side. Contact the flower stick in the same spot and begin to tick-tock in this manner. 	
Helicopter	<p>Tick-tock with the Top Idle technique.</p> <ul style="list-style-type: none"> Choose 1 control stick (right or left) and begin to slowly push the flower stick outward and around as well as up. The opposite control stick will collect the flower stick and scoop it inward as well as up. As this happens, the control sticks will move closer together. The closer they are, the faster the helicopter. 	
Propeller	<p>Get ready by finding a controlled tick-tock rhythm.</p> <ul style="list-style-type: none"> The object is to spin the flower stick on 1 control stick. Bring the control stick toward the center of the flower stick and spin or scoop in a tight inward rotation. Practice with both the right and left hands. 	
Flower sticks are a modified version of performance devil sticks.		

ACTIVITY CARDS

SPINNING PLATES

Activity Name	Description	Forces of Science
PART 1		
Beginner Spin Up	<p>Start with the stick on the rim of the plate.</p> <ul style="list-style-type: none"> Slowly start turning the plate in circles, moving the stick in circles with a wrist motion. Increase speed with circular wrist motion. As speed increases, stop spinning and hold stick firm, bringing the tip into center position on the plate. 	Discuss Center of Gravity
Toss and Catch	<p>Start with the plate spinning and the stick straight up and down.</p> <ul style="list-style-type: none"> Start with a small upward toss (an inch or less). As the plate lands, "give" with the stick to cushion the landing. Gradually increase the distance of the toss. 	Discuss Newton's 1 st Law of Motion
Curls	<p>As the plate spins, hold the stick near the top, below the plate.</p> <ul style="list-style-type: none"> Curl the stick and plate down toward your hip so that it moves under your arm. Pass the stick behind your back to your other hand and then up and under your other arm. 	Discuss Balance
Flip Catch	<p>Start with the plate spinning.</p> <ul style="list-style-type: none"> Toss the plate up as high as you can while still successfully catching it. As the plate is in the air, flip the stick and catch the plate with the other end. 	Discuss Newton's 3 rd Law of Motion
PART 2		
Throw Start	<p>Hold the plate with both hands, using fingertips around the rim of the plate. Hold the stick ready in your dominant palm.</p> <ul style="list-style-type: none"> Toss and spin the plate up in the air. Quickly position the stick to catch the spinning plate. 	
Finger Spin	<p>Start with the plate spinning.</p> <ul style="list-style-type: none"> Quickly swap the stick for the index finger of your opposite hand. Try this trick with a small toss from the stick to your finger. 	
Two Plates	<p>Hold a stick and a plate (hanging in starting position) in each hand</p> <ul style="list-style-type: none"> Start spinning the plate in your non-dominant hand first. When that plate is spinning successfully, begin the other plate. When you've mastered this technique, try holding only 1 plate, spinning it, and then picking up the 2nd stick/plate combination while the 1st is spinning. In this way you can add more and more sticks and plates. 	
Partner Plate Pass	<p>Stand across from a partner, about 3 to 5 feet away. Both partners begin spinning a plate.</p> <ul style="list-style-type: none"> On an agreed count (e.g., 1,2,3, toss!), toss the plate toward your partner's stick. Both partners toss at the same time. One will agree to toss over and one will agree to toss under in order to avoid a collision. 	

Be sure to tell students that spinning plates are specially designed for performance. DO NOT try spinning plates from a kitchen cabinet!

ACTIVITY CARDS

BALANCE CHALLENGES

Activity Name	Description	Forces of Science
SPOONER CHALLENGES		
Spooner Board Basic Balance	<p>Start with your feet on the grit paper on each side board.</p> <ul style="list-style-type: none"> Rock slowly from side to side. Gradually settle the board in the center and hold a balanced stance. 	Discuss Center of Gravity
Spooner Board Tick Tack	<p>Start in a basic balance stance.</p> <ul style="list-style-type: none"> Shift weight to 1 foot (this is your pivot foot) and pivot so the opposite foot glides forward (this is your slide foot). As the slide foot comes forward, shift weight to the front and then back to the original pivot foot (a rocking motion). Pivot back to your original balance stance, shifting weight back and forth from slide foot to pivot foot and then repeating this tick-tock motion. 	Discuss the Mechanics of a Pivot Point
Spooner Board Around the Clock	<p>Start in a basic balance stance.</p> <ul style="list-style-type: none"> Shift weight to 1 foot (this is your pivot foot) and pivot clockwise a quarter turn. Rock down by shifting weight down on slide foot in this position and then back to pivot foot. Pivot clockwise another quarter turn and rock down again. Repeat with a total of 4 quarter turns. Each quarter turn represents 15 minutes on the clock. You'll rock at 3, 6, 9 and 12 o'clock positions. Try this same trick counter-clockwise. 	Discuss Newton's 1 st Law of Motion
Spooner Board 360	<p>Start in a basic balance stance.</p> <ul style="list-style-type: none"> Wind your body by twisting your upper body in the opposite direction from the direction you'd like to spin. Quickly unwind your body as you shift your weight to a pivot. As you spin, experiment with the position of your feet in order to spin on different parts of the spooner board. Try this both clockwise and counter-clockwise. 	Discuss Newton's 3 rd Law of Motion

BEAM CHALLENGES

Beam Walk	<p>Before you can perform circus tricks on the beam, be sure you can walk on the beam with confidence.</p> <ul style="list-style-type: none"> Stand on the beam with 1 foot in front of the other. Keep your center of gravity over the beam. Extend arms to the side if needed. As you step, keep your foot close to the beam in order to keep your center of balance over the beam. Experiment with different arm positions and a variety of step lengths. 	
Beam Poses	<p>Start by standing on the beam with 1 foot in front of the other. Keep your center of gravity over the beam.</p> <ul style="list-style-type: none"> Experiment with different positions and poses on the beam. For example, 1-foot poses, low-level poses, high-level poses, wide poses, or narrow poses. When ready, begin basic scarf juggling while on the beam. 	

Quickly add manipulative performance equipment (like juggling scarves) to the beam challenges; students will get board of the beam quickly.