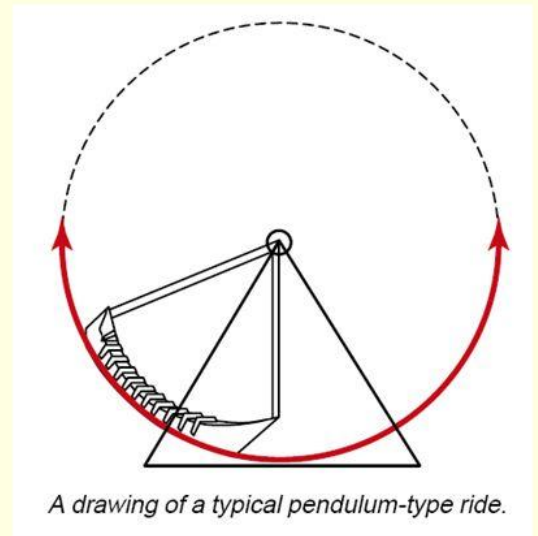


Design, build, and animate a Pendulum Ride similar to the “Battering Ram” at Busch Gardens Williamsburg.



Pendulum Rides

- Although most pendulum rides do not make a full circle, riders do experience circular motion.
- Swinging back and forth on this curved path allows you to feel the sensations of both high and low G's.



Considerations:

Size of Model

In the dormant (ride not running) position, the ride model may not exceed a 12 inch by 12 inch footprint. There are no height restrictions.

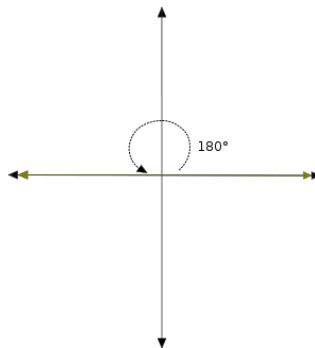
Animation:

The design must take into consideration how the ride motion will be achieved.

Our two mechanical options are:

The Servo

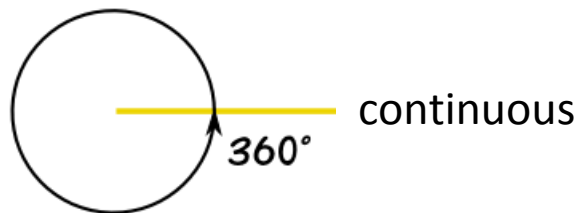
which offers 180 degree movement,



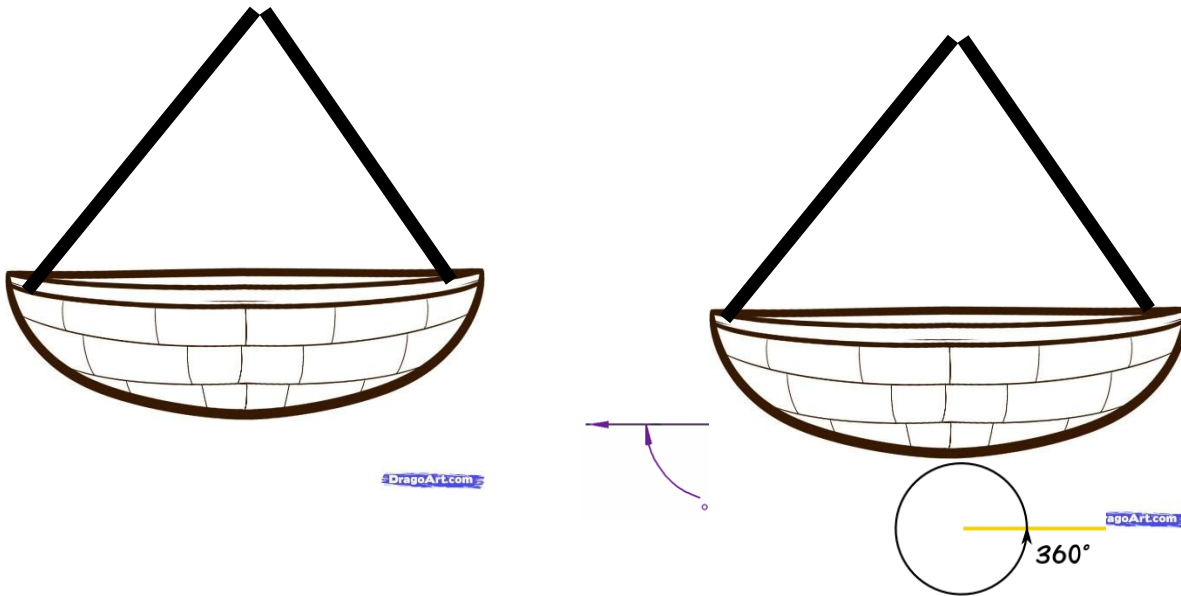
The Motor



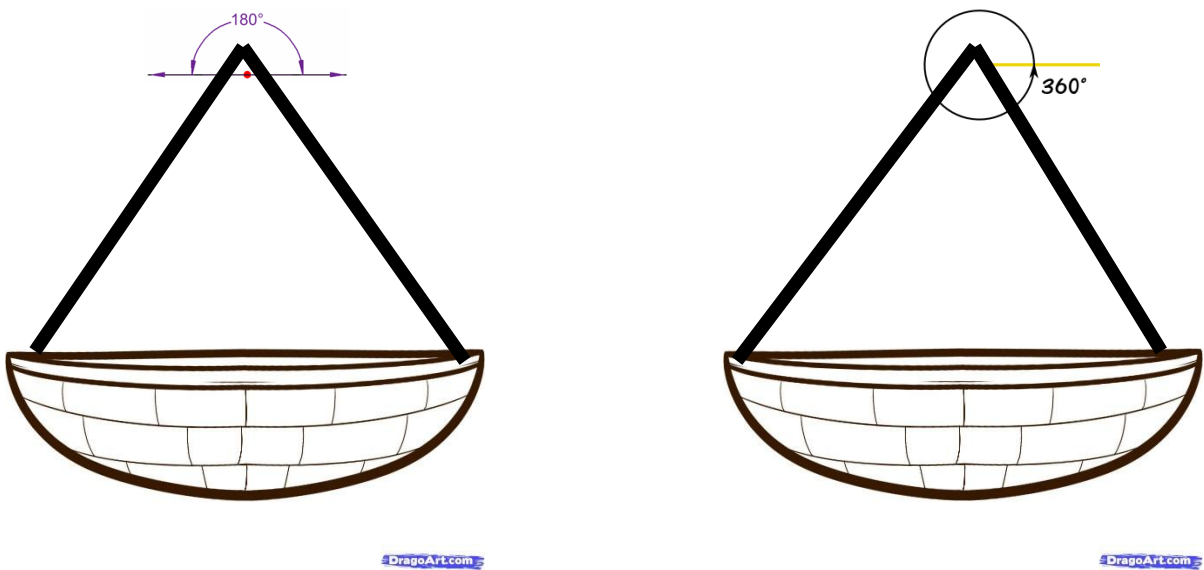
Which offers 360 degree movement.



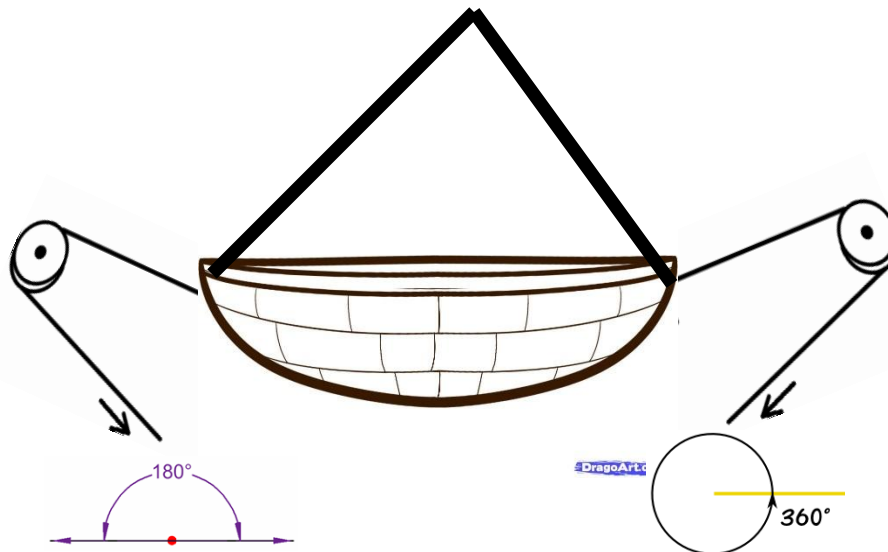
Should the motor or servo be under the boat?



Should the servo or motor be at the top of the pendulum?



Could a rope and pulley system be used?



How will servos, motors, lights etc. be disguised so riders cannot see the wires?

Will the programming take into account the ride “start up”?
(Gradual increase in boat rotation at beginning and gradual decrease at end)

Pendulum Ride Design

Group Number: _____

CATEGORY	4	3	2	1
Completion	The entire project is complete.	Most of the project is complete.	Half of the project is complete.	Less than half of the project is complete.
Measurements	In the dormant (ride not running) position, the ride model does not exceed the 12 inch by 12 inch footprint. (144 square inches)	In the dormant (ride not running) position, the ride mode slightly exceeds the 12 inch by 12 inch footprint. (144 square inches)	In the dormant (ride not running) position, the ride model exceeds a 15 inch by 15 inch footprint. (More than 225 square inches)	In the dormant (ride not running) position, the ride model exceeds an 18 inch by 18 inch footprint (More than 324 square inches)
Use of Hummingbird Robotics	Robotic accessories used in a proper fashion. More accessories were used than just a motor or a servo.	Robotic accessories used in a proper fashion. Accessories used were just a motor or a servo.	Robotic accessories used in a proper fashion. Programming was done but motors and servos not attached.	Did not have an opportunity to program the robotics.
Design	Ride is well organized and attractive to the eye. All wires, motors, servos, and circuit board are not visible.	Ride is organized and attractive to the eye. Most of the wires, motors, servos, and circuit board are not visible.	Ride is somewhat organized. Many of the wires, motors, servos, and circuit board used are visible.	Ride still in basic construction phase.