

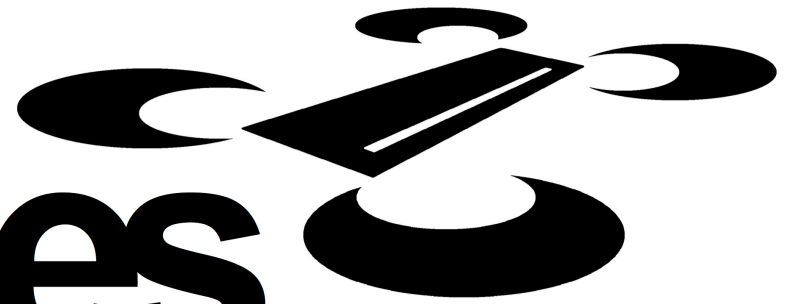
# CNY Drones

**CENTRAL NEW YORK'S DRONE COMMUNITY  
PROMOTING STEM EDUCATION & SAFETY AWARENESS**



**CNY Drones** 

# CNY Drones



## Connections



Delivering JOY Since 1929



We Enable Innovation

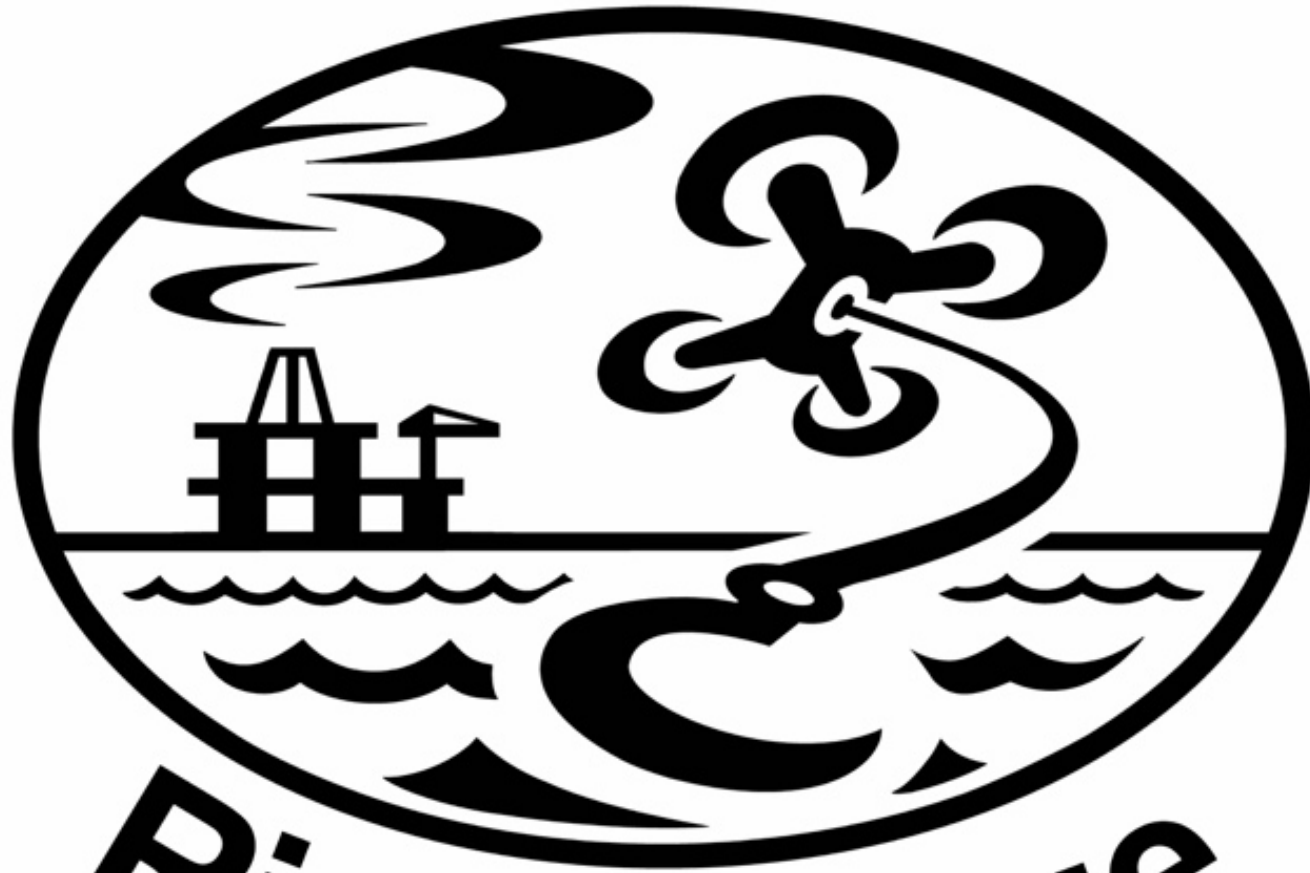


End Mill Solutions



Owensboro - Herkimer - Madison BOCES for Nanotechnology and STEM





**Rig Rescue**  
STEM-Based Team Drone Challenge

# Why A Drone Challenge?

- Need to make tech **interesting** beyond the classroom
- **Connection** to drone technology corridor
- Lack of **link** in existing education/employment pipeline
- Correlation - STEM program **growth** & local tech
- Need to develop interns to **support** emerging drone tech

# Development – NGSS Framework

- *Asking questions & defining problems*
- *Developing & using models*
- *Planning & carrying out investigations*
- *Analyzing & interpreting data*
- *Using mathematics & computational thinking*
- *Constructing explanations & designing solutions*
- *Engaging in argument from evidence*
- *Obtaining, evaluating, & communicating information*

Source: <http://www.nextgenscience.org>

# Challenge Concepts

- *Flying basics & negotiating obstacles*
- *Consideration of atmospheric conditions*
- *Lifting, delivery & retrieval of payloads*

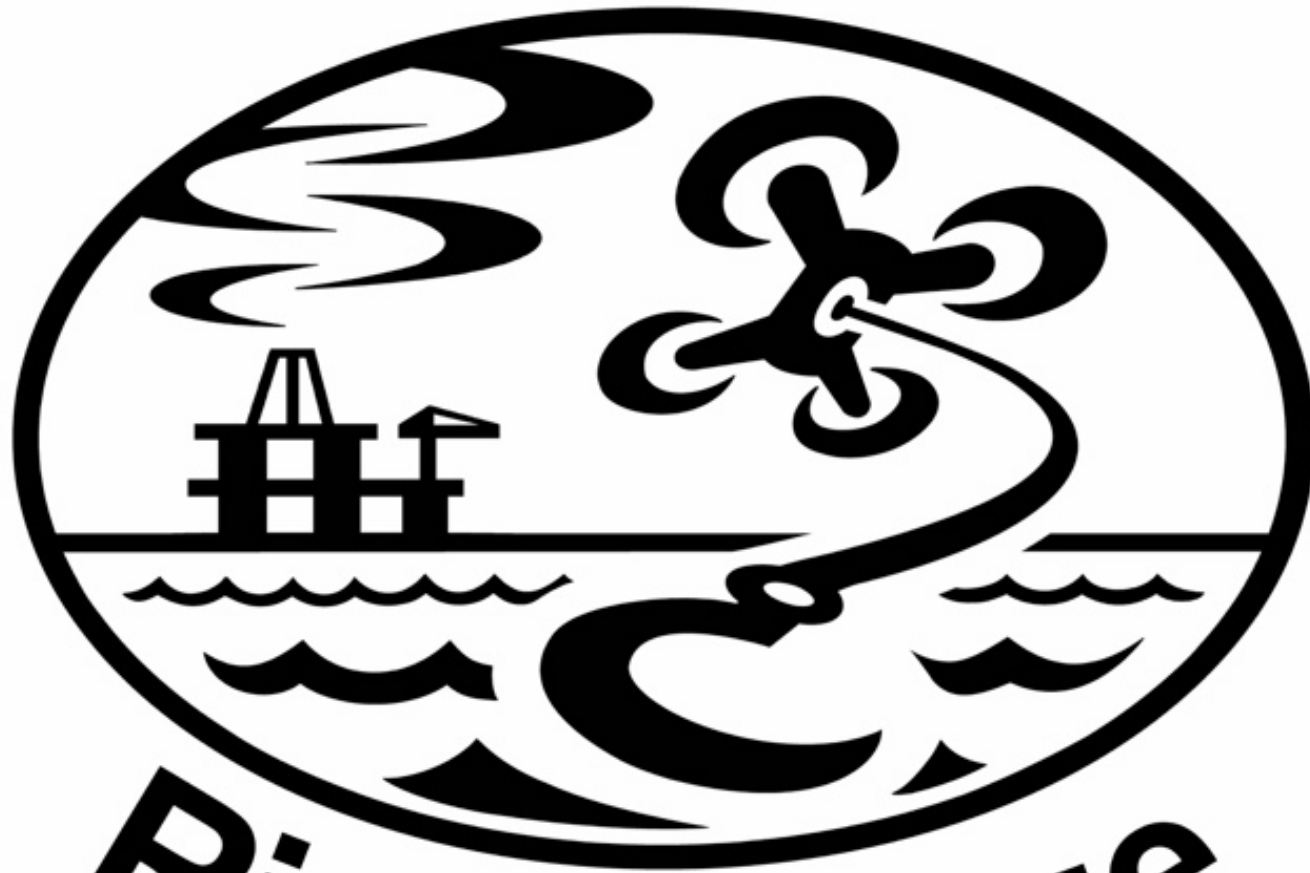
# Challenge Concepts

- *Photography &/or videography during flight*
- *Levers, buttons, pushing & pulling*
- *decision making / developing alternative solutions*
- *Teamwork & communications*



# Development - Lessons Learned

- Robotics program development experience
- Educator's experience
- Drone engineer's experience
- Comparative costs with drones
  - building equipment
  - team registration
  - event registration
  - field elements/ancillary equipment
- Availability of technical mentors
- Existence of a gaps left by existing programs



**Rig Rescue**  
STEM-Based Team Drone Challenge

# The Story - Theme

**A malfunction has led to a fire on an off-shore oil platform.**

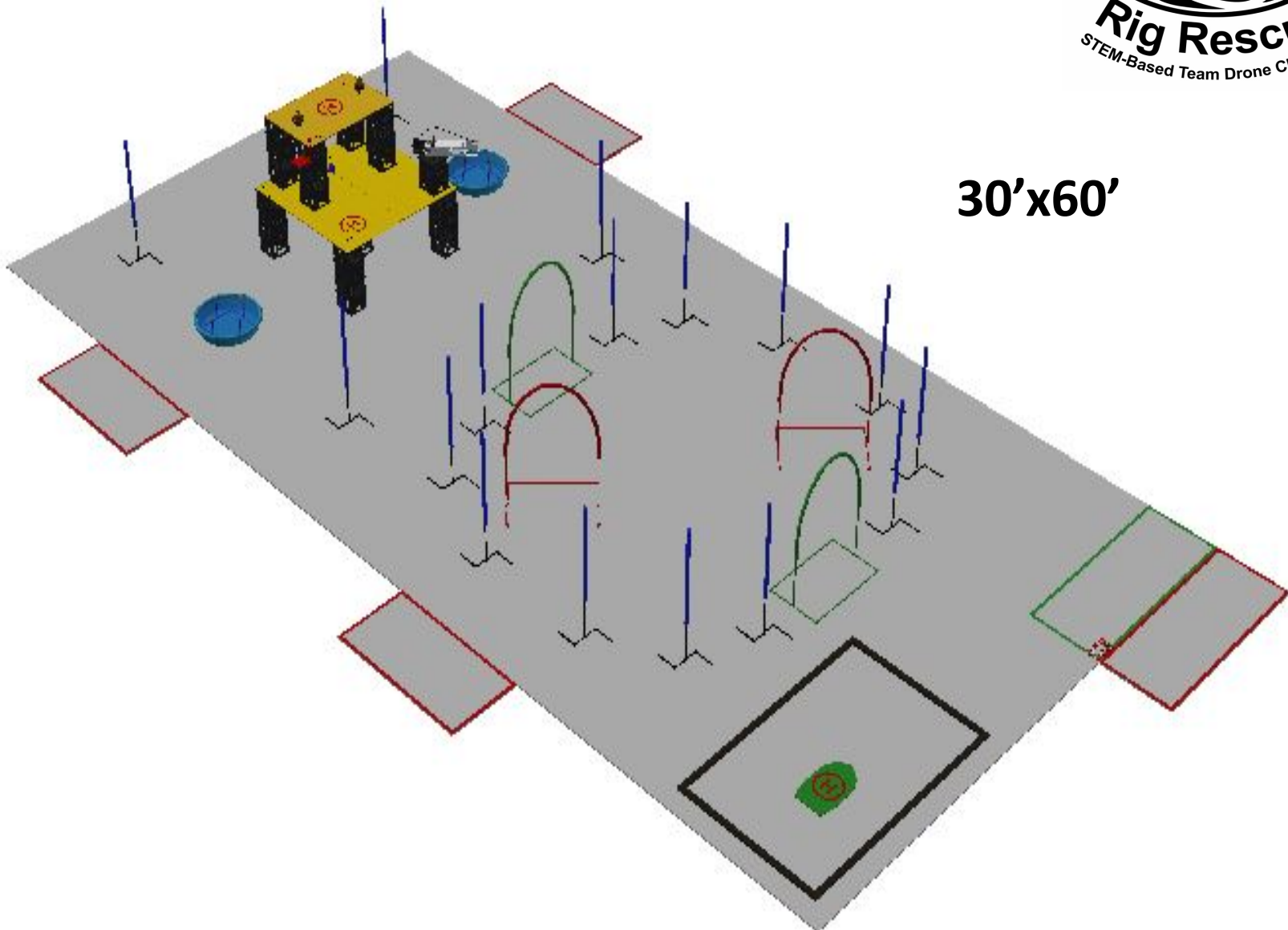


# The Story - Theme

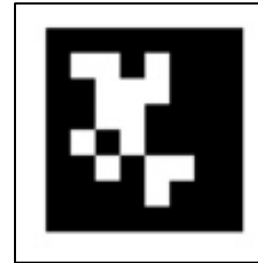
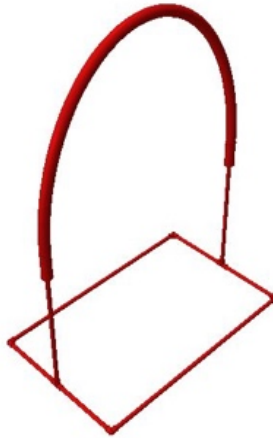
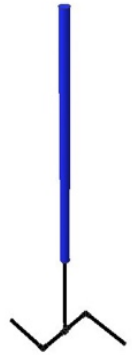
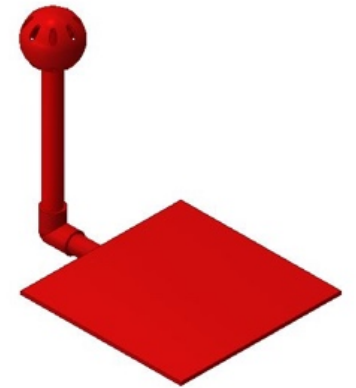
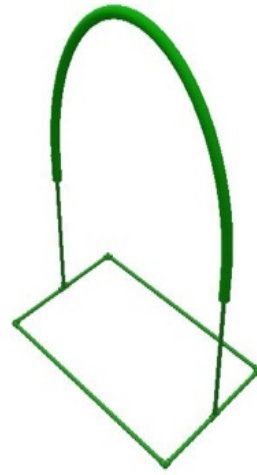
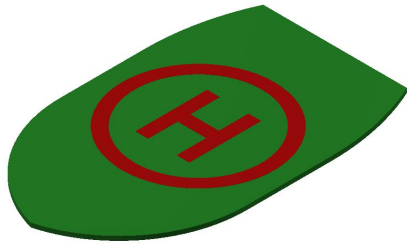
Your rescue team has been dispatched to:

- **navigate** through shark infested waters
- **survey** the damage
- **activate** fire suppression systems
- **retrieve** the platform's computer drive
- **secure** a free-swinging crane
- **rescue** survivors

# The Course



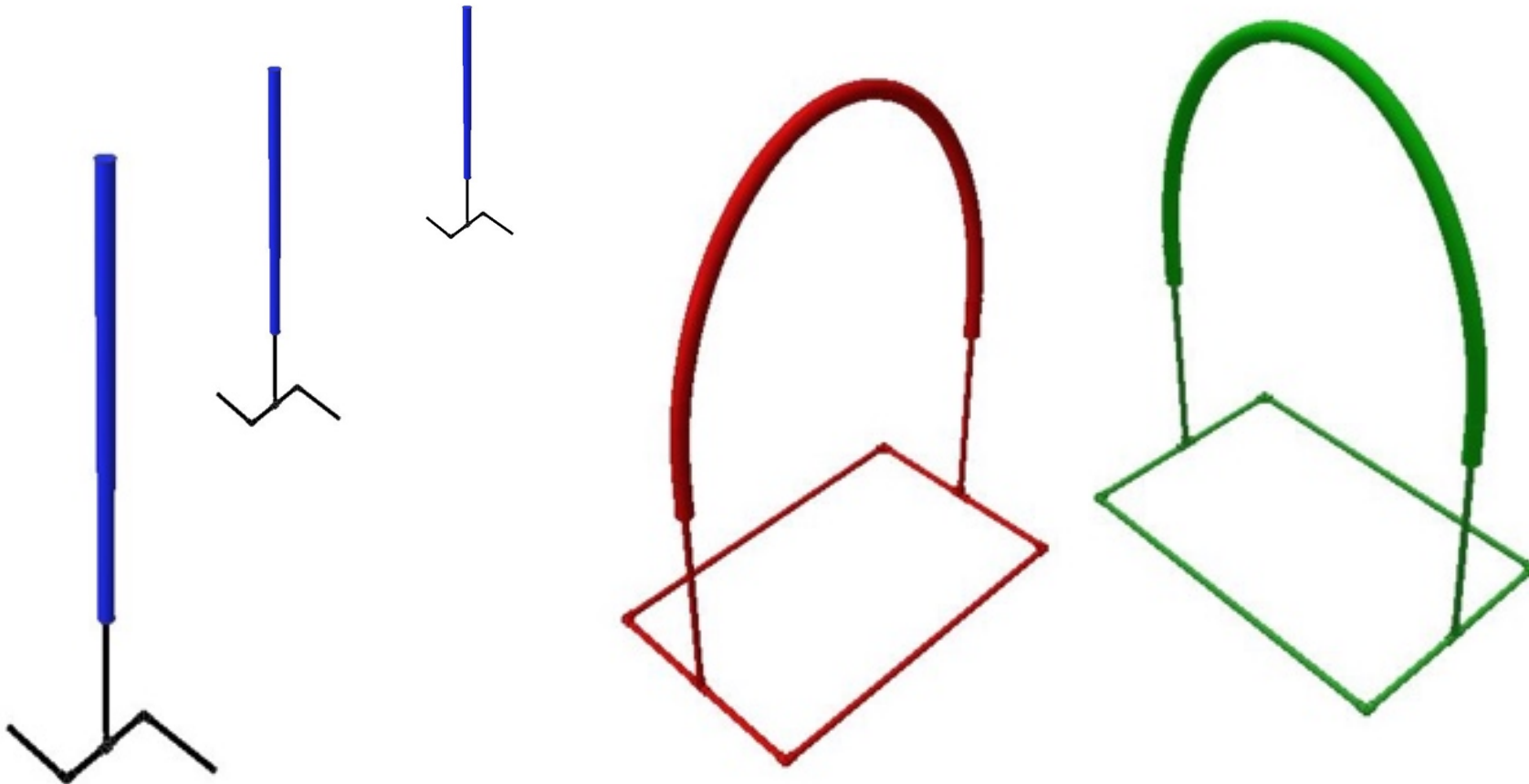
30'x60'





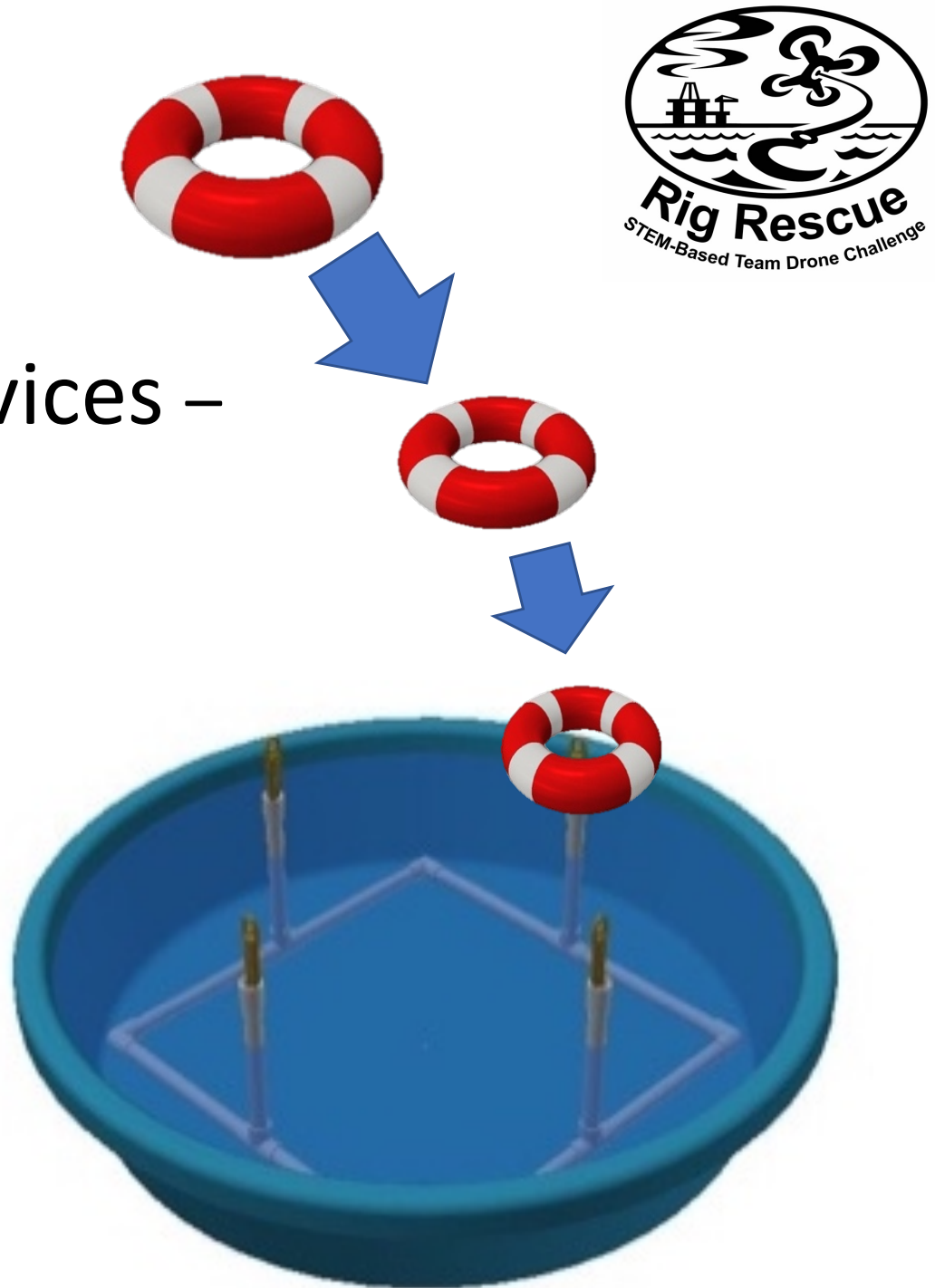
# The Course

Navigate an air corridor and obstacles



# The Course

Deploy flotation devices –  
to survivors in the water

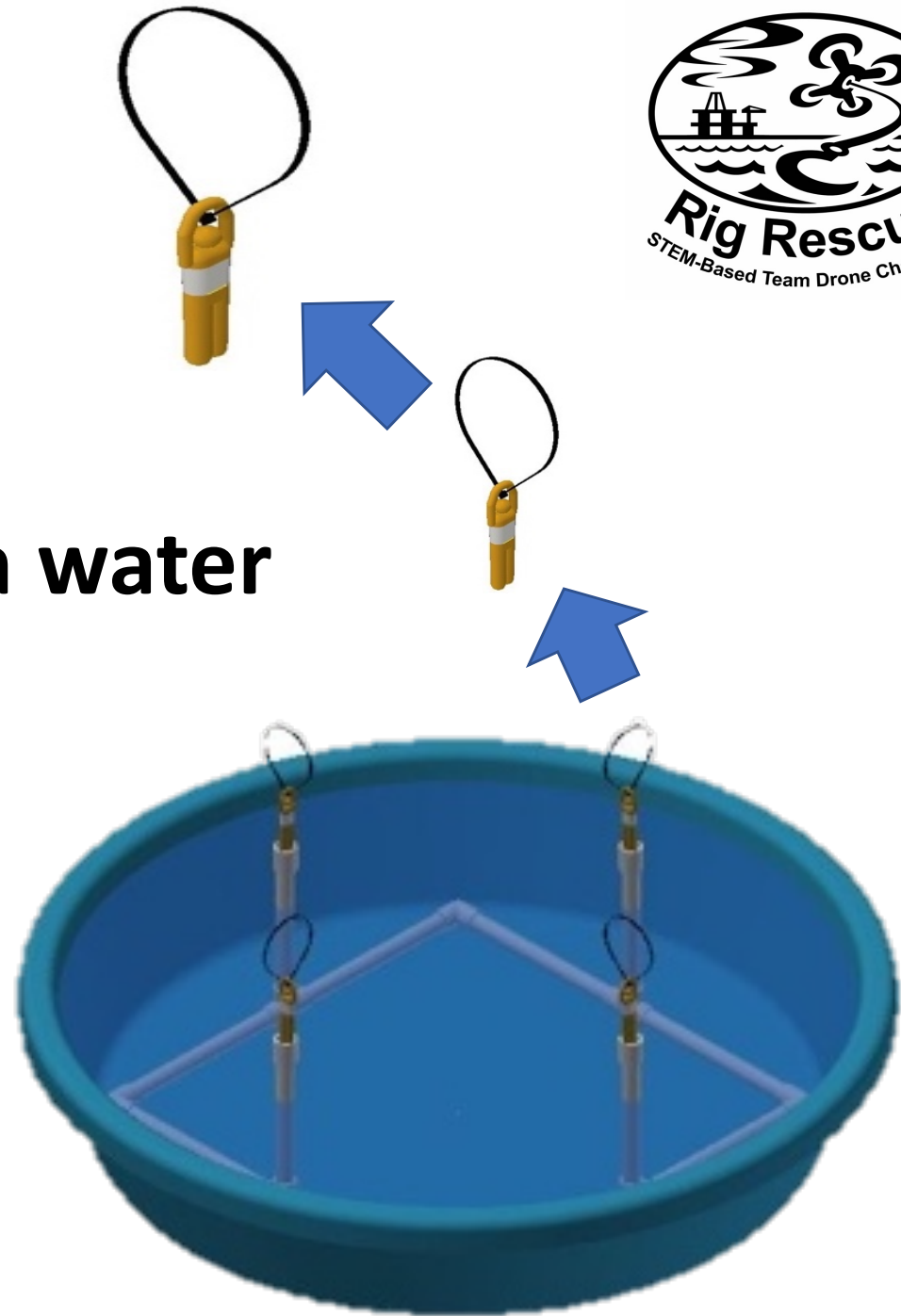




# The Course



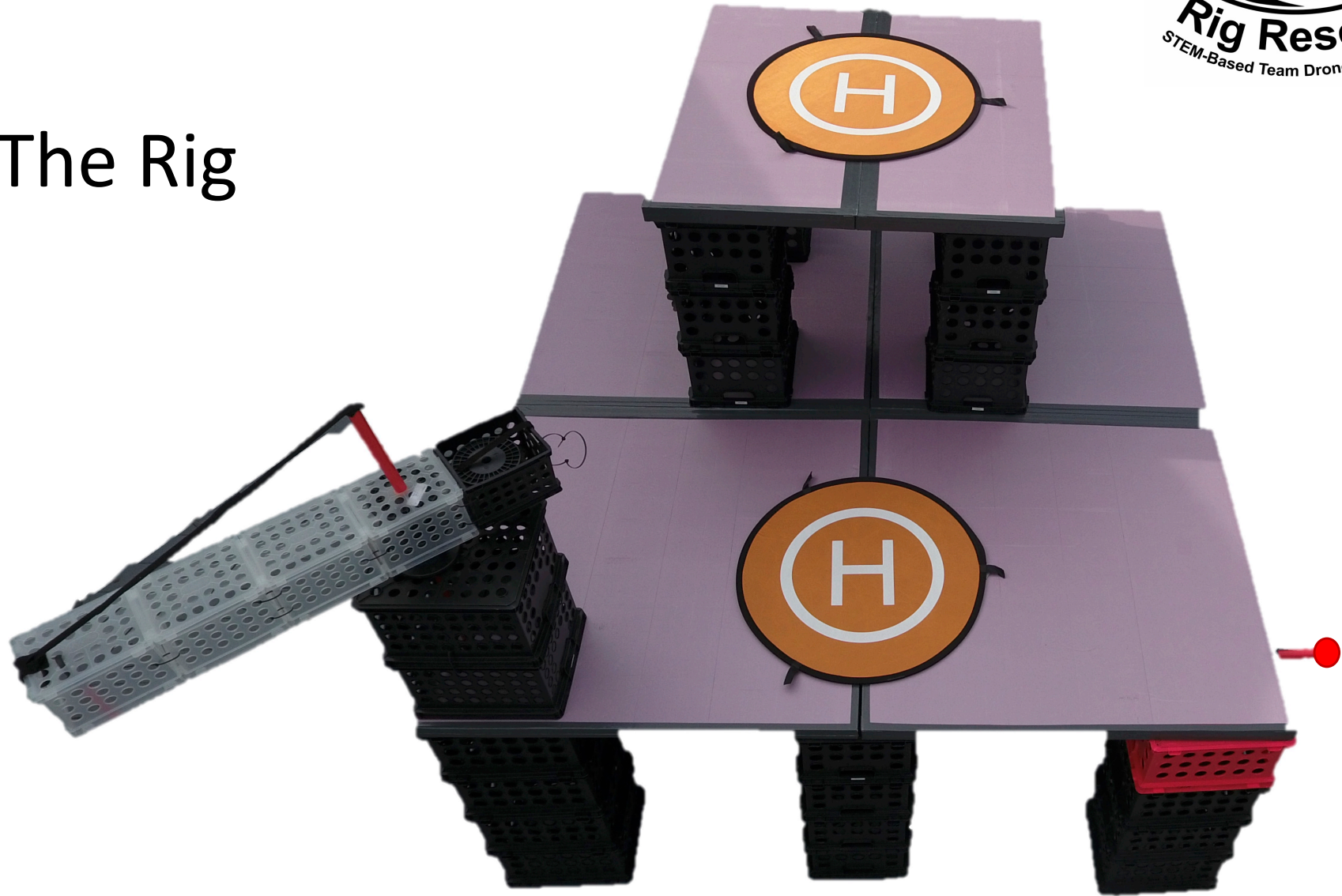
Rescue survivors in **water**





# The Course

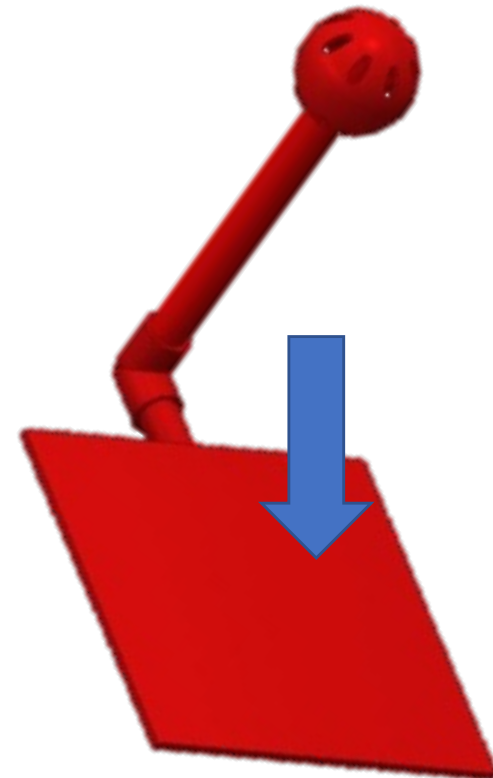
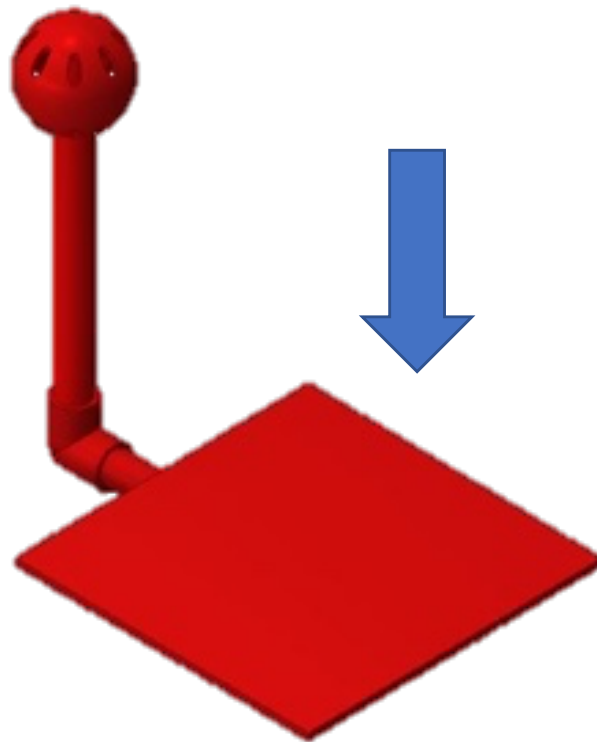
## The Rig





# The Course

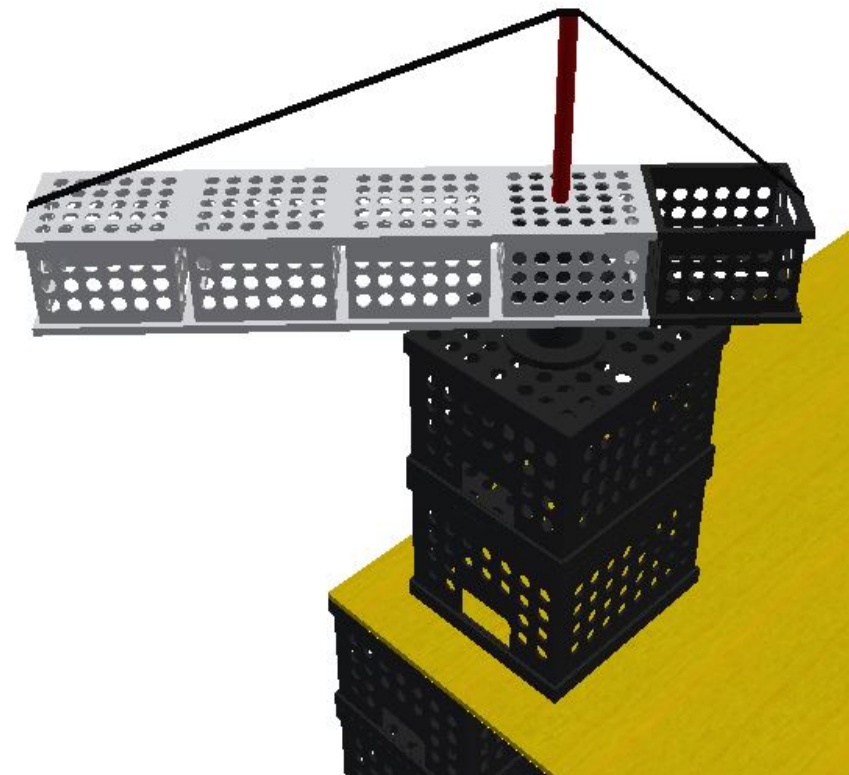
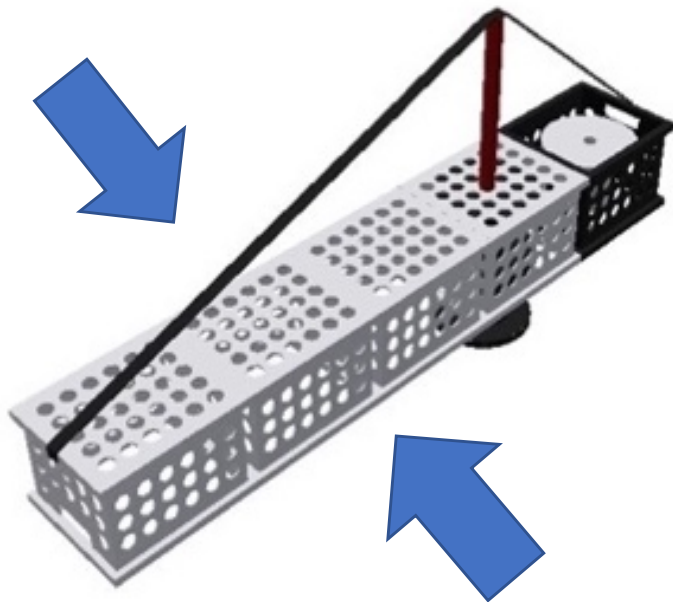
Activate a fire suppression system  
(lever)



# The Course



Secure the crane

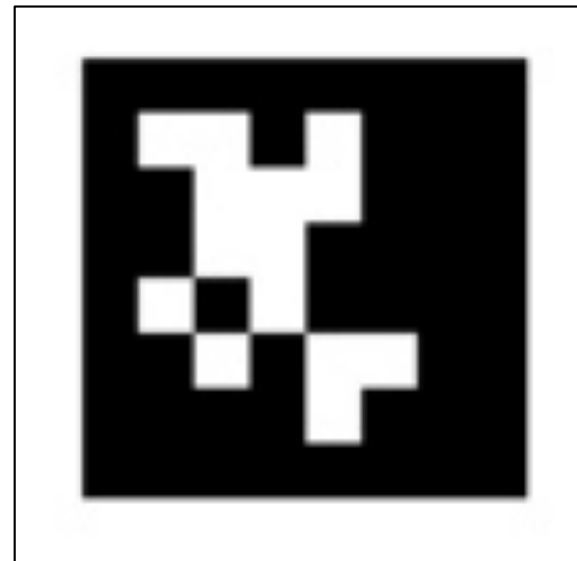




# The Course

Assess structural stability & take photos  
of key issues

(4 variable elements)





# The Course

Land on the oil rig platform - in 1 or 2 locations





# The Course

Retrieve a hard drive - within the rig structure

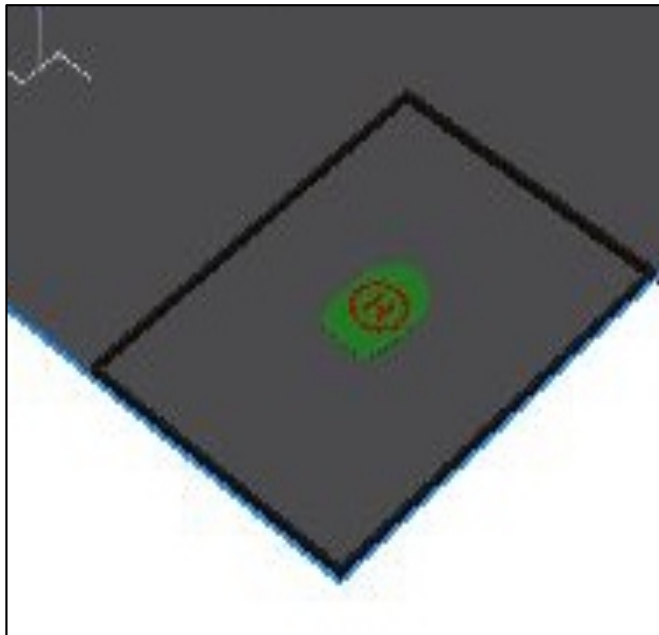
(variable element)



# The Course



Return to a moving rescue ship





# Safety Video Challenge

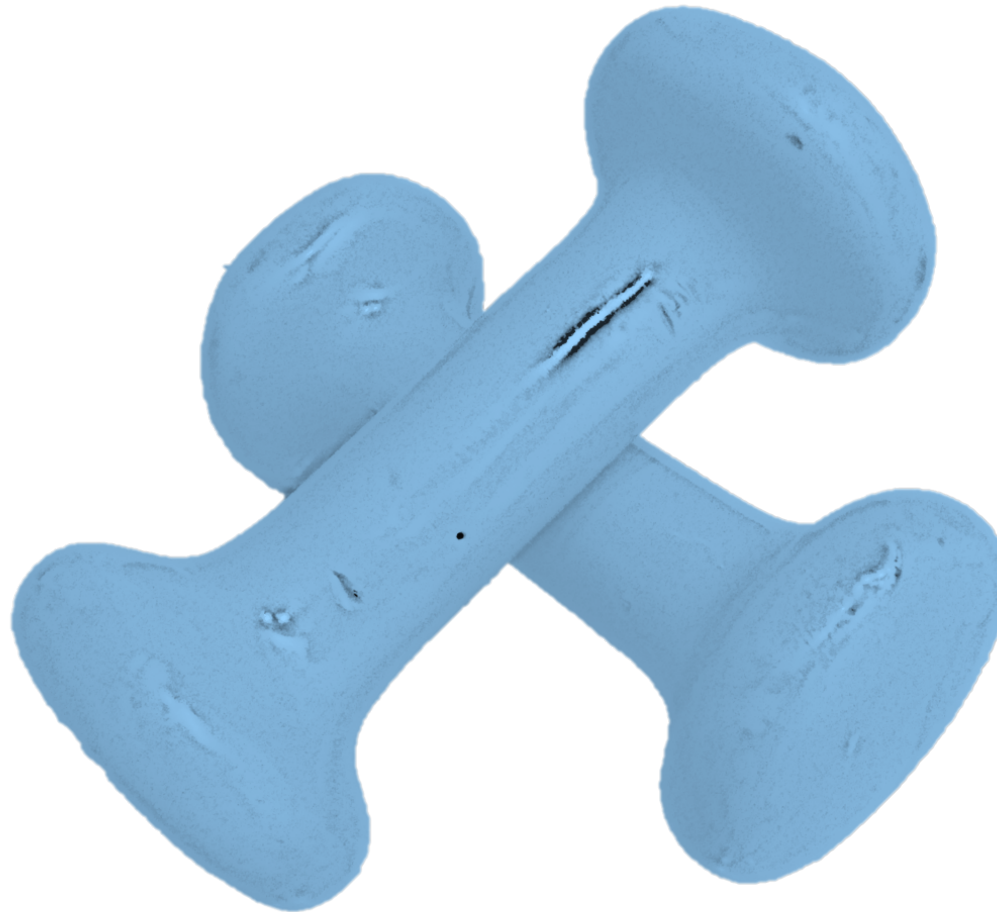


Create a 30, 60 or 90 second  
drone safety video



# Weight Lifting Challenge

(coming next season!)



# Open Competition



- any age combination (**age 11+**) & experience level
- minimum of 2 individuals per team
  - & include one adult
- school based, community supported, neighborhood or family teams

# Open Competition



- low cost practice elements
  - easy to duplicate
    - build instructions available
  - no ordering \$\$\$ field or \$\$\$ kit

# Open Competition



## Flight Crew

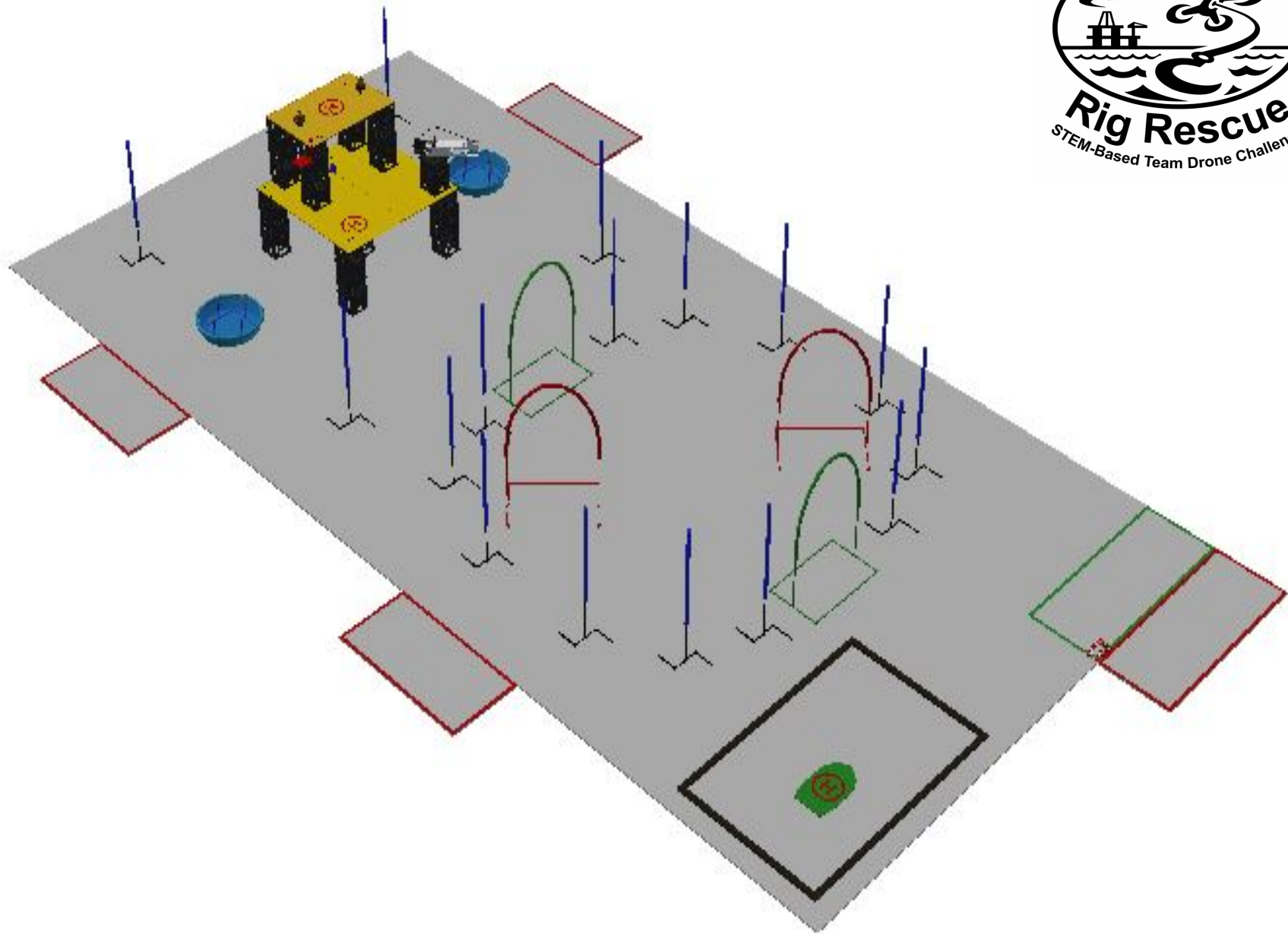
- Pilot
- Operator
- Visual Observers

# Open Competition

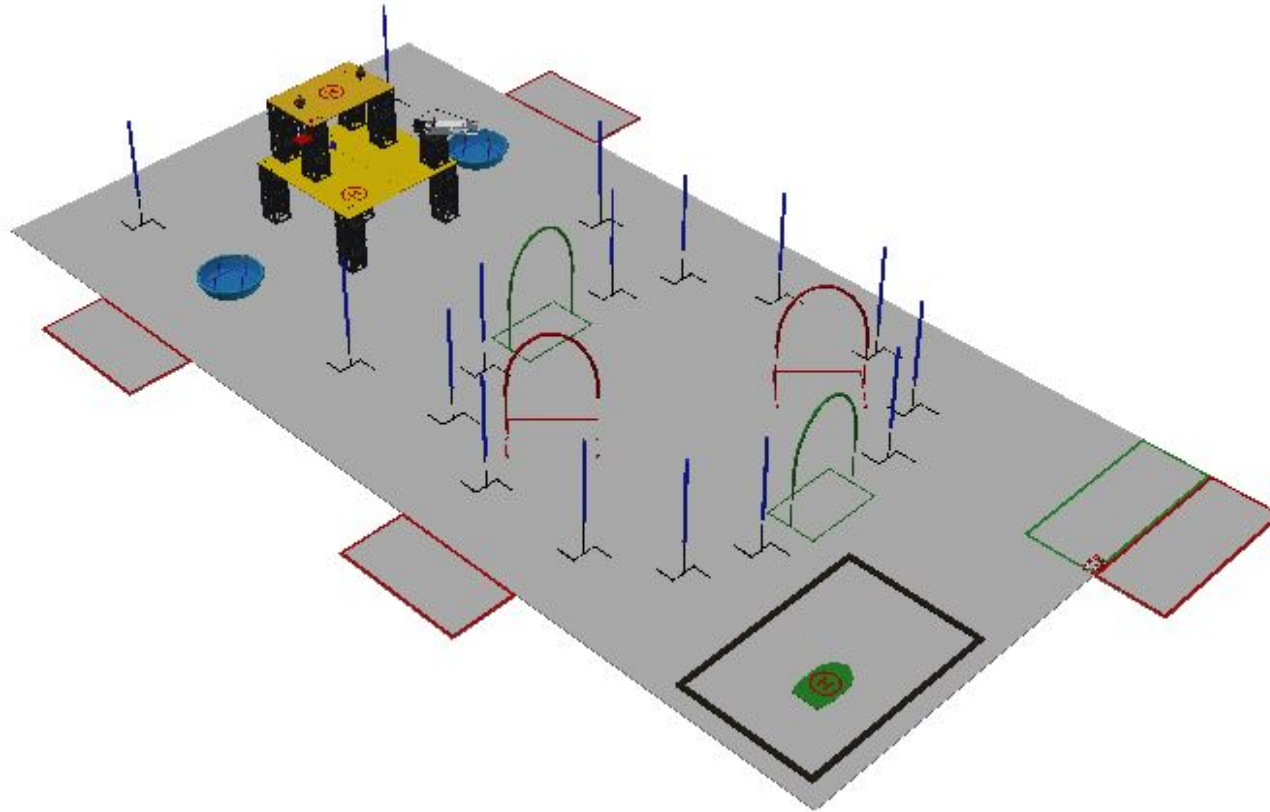


## Team Registration

- \$50 registration donation
- scholarships may be available
- team advancement opportunities - AMA



Sunday, April 15, 2018  
Utica Parkway Recreation Center





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