ANIMAL FIRE RESCUE

TRAINING

Alpine, CA - San Diego County

Mission Statement

To provide Animal Rescue Training to any agency that would benefit from learning how to save animals using Fire Rescue Standards, and to provide that training in conjunction with other agencies because joint training leads to smooth interagency calls.

Rope Rescue Anchors

Operational Training

Ken Gilden Instructor Qualifications

Fire Fighter 1

Single Resource Boss

Crafton Hills Fire Academy

Fire Instructor for SDHS

Tech Rescue Instructor

Animal Fire Rescue
Pres. & Lead Instructor

GAFSC Board Member

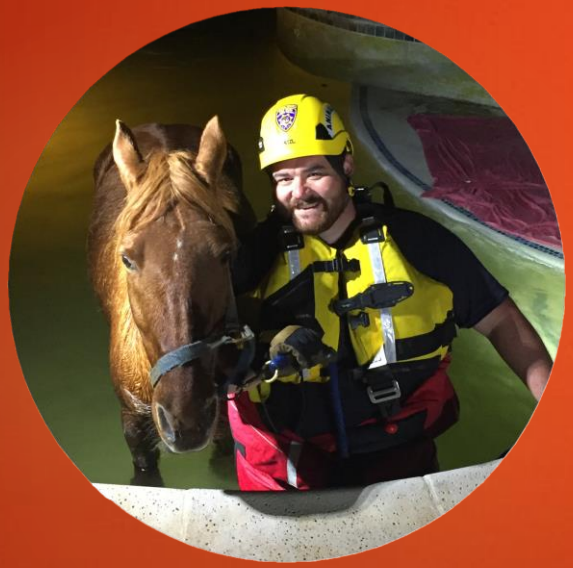
ASAR Fire Instructor

Rt-130 WFSTAR Instructor

Fire & EMS Training

TECC Instructor

Austin Seuferer
Instructor Qualifications



- Sergeant of Humane Law Enforcement, San Diego Humane Society
- Senior Team Lead, Technical Rescue Team- San Diego Humane Society
- Emergency Response Team- San Diego Humane Society
- Instructor, Technical Rescue- Animal Fire Rescue
- Animal Disaster Response Team- Code 3 Associated
- ASAR Team member- Animal Search and Rescue

Tie a Double Loop Figure 8

Terminal Learning Objective (TLO)

At the end of this course the student will have an Operational Level knowledge of Anchor Systems:

Class Standards

- NFPA 1670
- SDHS Tech Rescue
- Animal Fire Rescue
- ASAR Training
- State Fire Training

By the end of this class you should be able to explain the following Definitions

- Shock Load
- Tag Line
- ERNEST
- Critical Angle
- COD Angle
- Master Point
- Anchor Systems

Topics

- Anchor Systems
- Voodoo Back-tie
- Tag Line
- Master Point
- Critical Angles
- Change of Direction (COD)
- Webbing Shortening Technique

Why are Anchor Systems so Important?

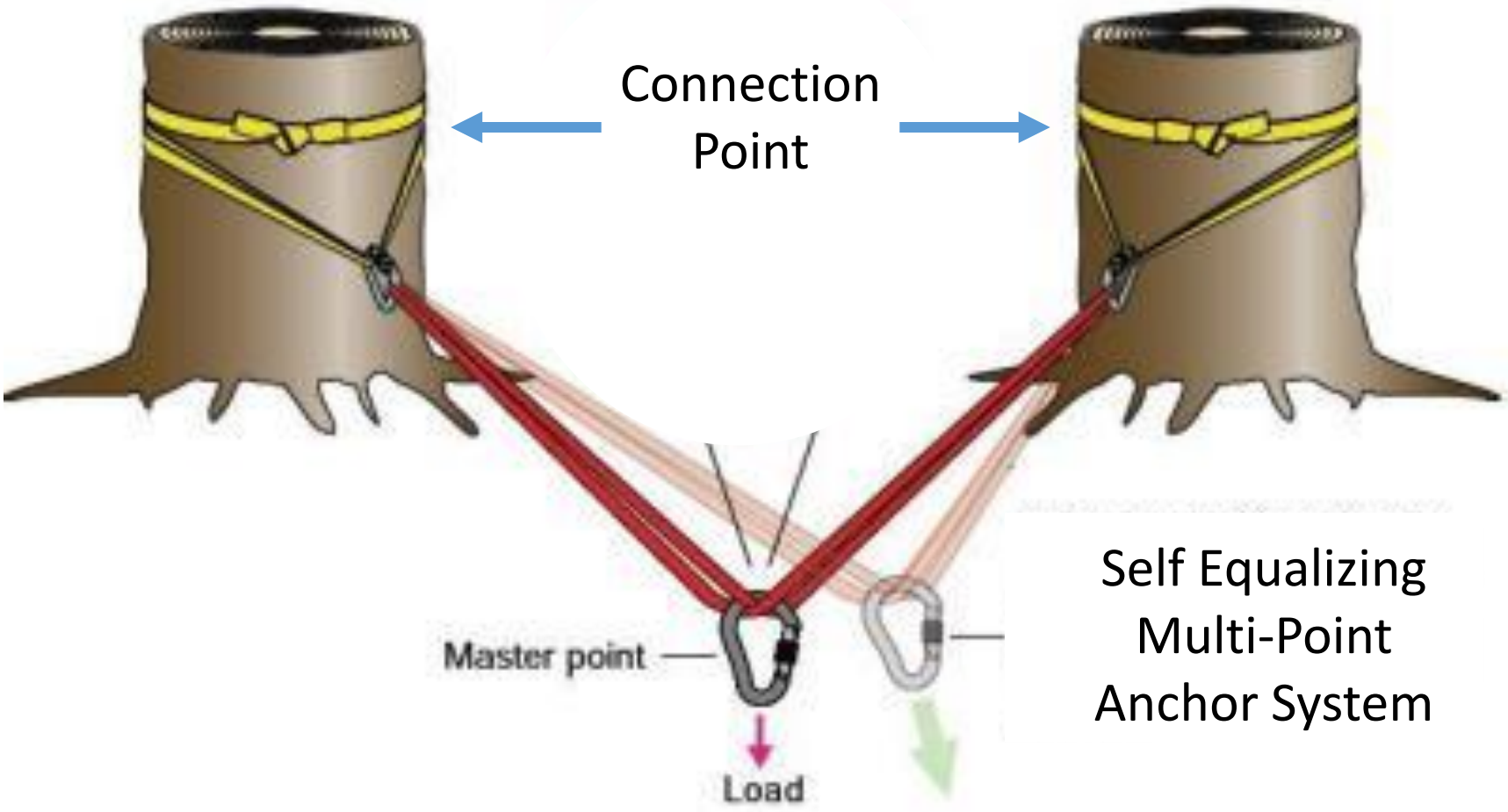
Without a Good Anchor System Nothing Else in Rope Rescue is Possible

Anchor Systems

Anchor Systems are made up of Anchor Points, Connection Points and Master Points.

They can be Single or Multi Point connections that can be Self Equalizing or simple Load Distributing.

Anchor Point



Self Equalizing
Multi-Point
Anchor System

Anchor Points

What are the 2 Types of Anchor Points

Type of Anchor Points

Artificial

Natural

Alien Technology

Anchor Points

Vehicle Anchors

The following slides show possible locations but are not necessarily built with the actual Connection Points that are used by Animal Fire Rescue

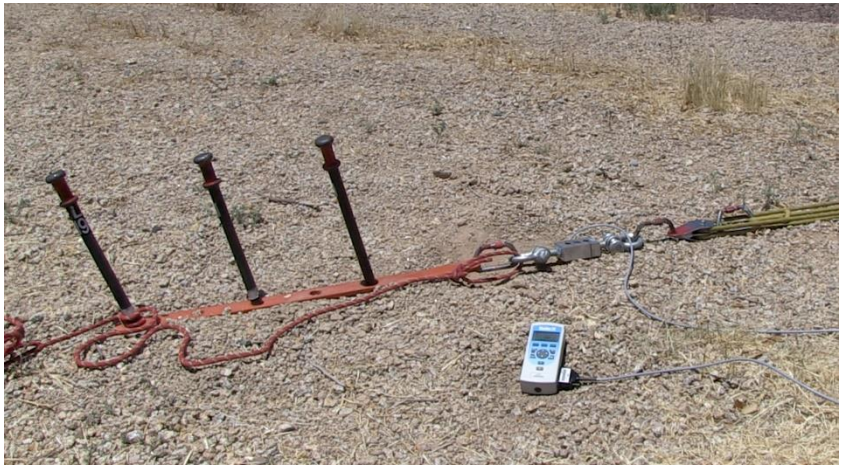

MOHEGANFIRE.COM

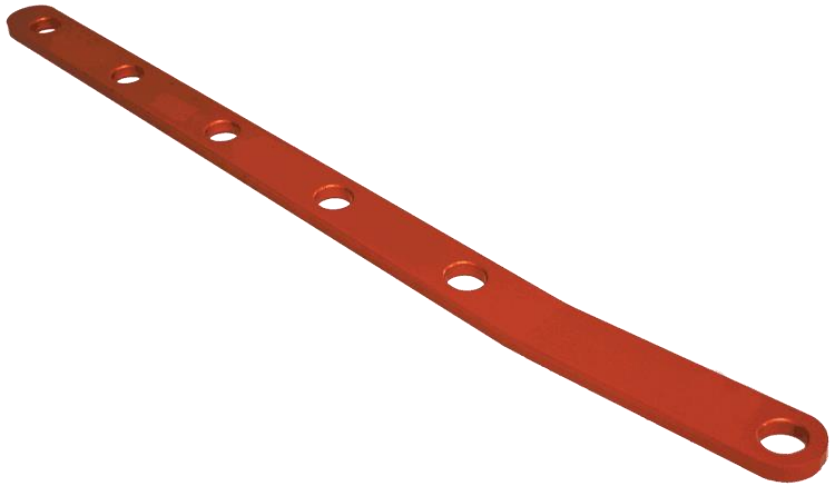

3,000 LBS MAXIMUM
ALLOWABLE ROPE LOAD

Anchor Points

Picket Plates

The strongest configuration is to have the Load in line with the Pickets, but the system can handle up to a 45-degree swing from center





Picket Plate Video

Copy and Past link below if the link does not open.
Return to this presentation after watching the video.

https://youtu.be/7mttlDxRpjE

Anchor Points

Trees

Tree Studies

Tree Anchor “Ratings” Based on Wind Loading

- Written By: Lance Piatt at Rigging Labs
- 6.5 “ Diameter for Ground Haul
- 9 “ Diameter for AHD
- Measure at about 6’ up tree

Common Practice

- 6-8” Diameter
- Helmet Diameter
- Good Soil (Not Sand or Mud)

Anchor Points

Rocks

Important Factors

- Size
- Location
- Soil (not Sand or Mud)
- Animal Holes
- Strong Rock
- Sharp Edges

Connection Points

What are the 6 Anchor Connections

- _____
- _____
- _____
- _____
- _____
- _____

Anchor Connections

- Basket Hitch
- Wrap 3 Pull 2
- Redundant Wrap 2 Pull 1
- Tensionless Hitch
- Figure 8 Follow Through
- Bowline

What are the 2 types of Multi Point Anchor Systems

- Single Point
- Multi Point
- _____
- _____

2 Types of Multi Point Anchor Systems

Load Distributing

Self Equalizing

Load Distributing Anchor Video

Copy and Past link below if link does not open.

Return to this presentation after watching the video.

https://youtu.be/hJO-zjymamg

Self Equalized Anchor Videos

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Return to this presentation after watching the video.

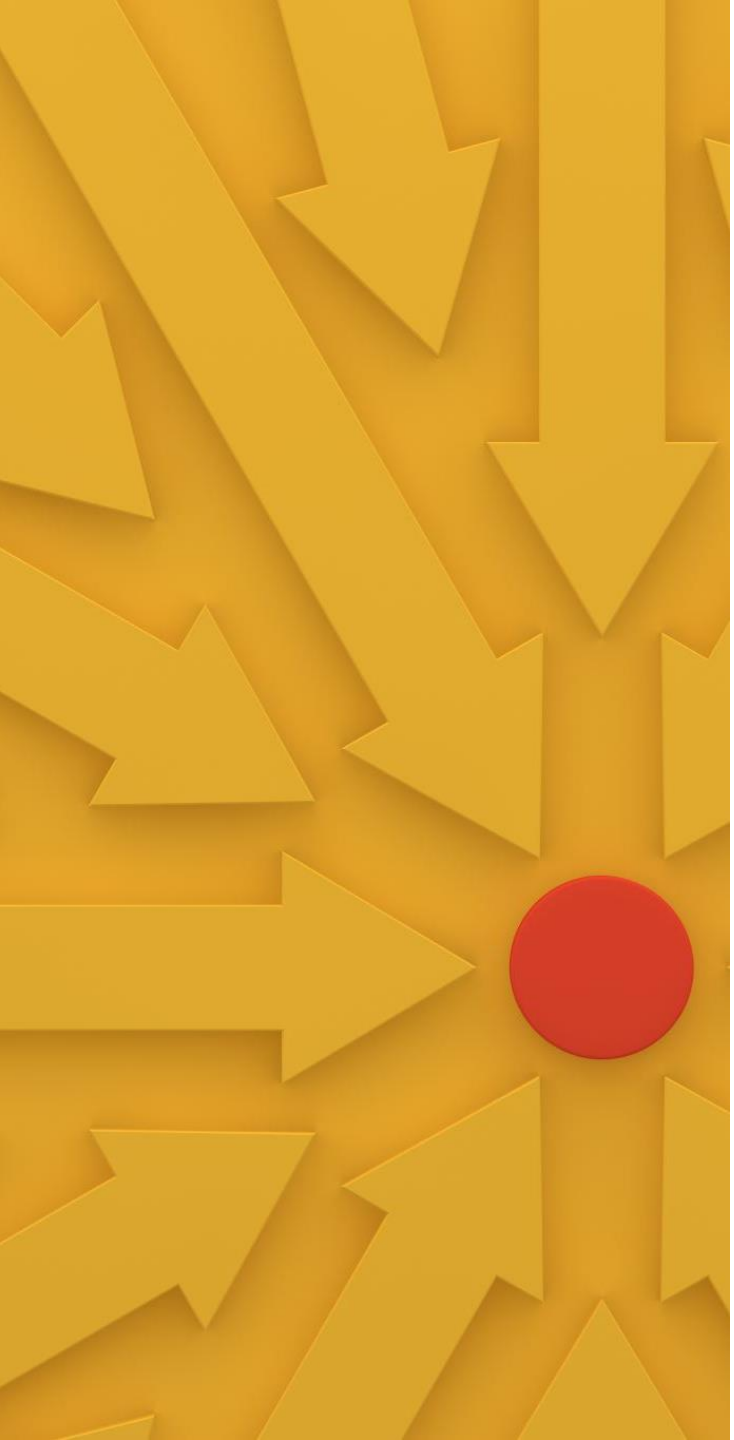
https://youtu.be/hUQM1fqWvH0

https://youtu.be/7H74vojYqvY

ERNEST

This an Acronym to test your Anchor System

- Equalized
- Redundant
- No Extension
- Strong
- Timely



Master Point

- The Point that the Anchor System ends, and all other Rigging begins.
- The Master Point will usually have a rigging plate attached to it.
- If placement is critical the Rigging Team Lead will give you the location, they would like the Master Point to end up.
- A Master Point can be on a Single or Multi Point system.

Tag Line

- A length of Lifeline Rope attached from the Anchor Point.
- Used to extend an Anchor Point toward the Load so an Anchor System can be constructed.
- Usually not under tension until Load is placed on the Raise or Lower Systems.

Back Tie

- Used to Back Up an Anchor that is not Bomb Proof.
- Attached to the Top of the Primary Anchor and the bottom of the Back Up Anchor.
- Usually done with a VooDoo Back Tie.

Voodoo Back-tie

This is the Primary Back-tie system used by Animal Fire Rescue

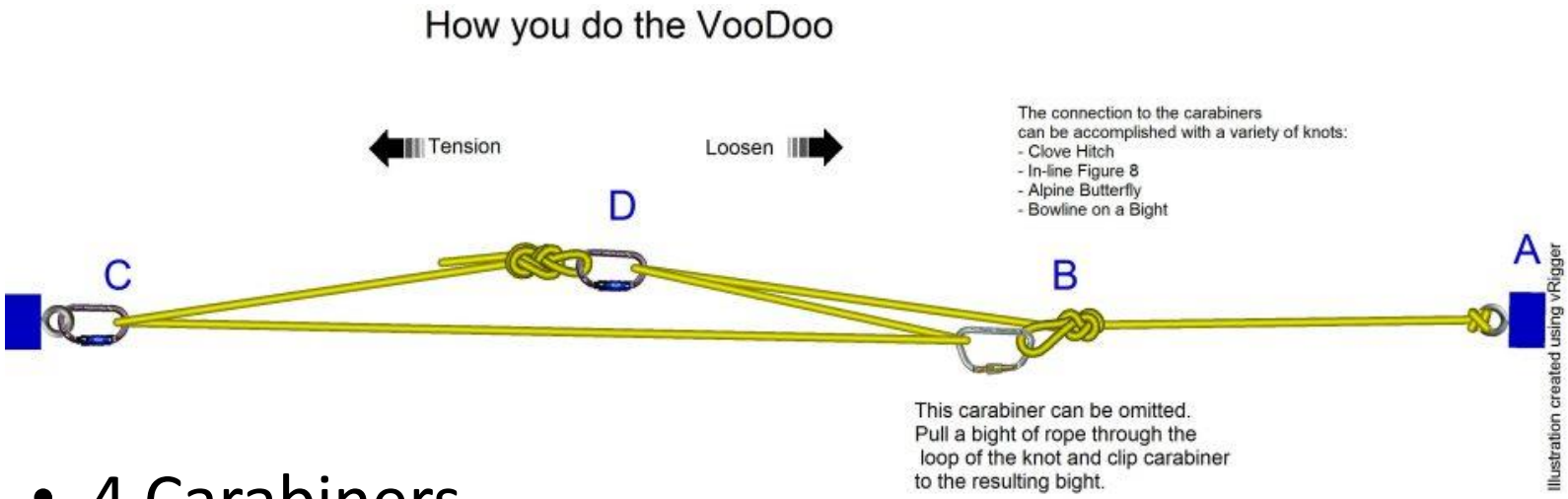
VooDoo Back Tie Video

Copy and Past link below if link does not open.

Return to this presentation after watching the video.

https://youtu.be/LYMp07hbYf4


Clove hitch
Carabiner 1
Anchor 1
Clove hitch
Carabiner 2
Anchor 2



- 4 Carabiners
- Rope
- Anchor Webbing
- Prusik

Safety on a VooDoo

Misc. Items

Shock Load

- When a free-falling Load comes to fast stop.
- The amount of Force can be several times greater than the Load itself.
- Shock Load can be eliminated with use of a Load Sharing Anchor System.
- Shock Load can be minimized in a Self Equalizing Anchor System with limiting knots or a smaller piece of webbing used at the end of the system.
- The final leg of a Self Equalized System should be 12” or less.

Floating Anchor

Webbing Shortening Technique

Webbing Shorting Video

Copy and Past link below if link does not open.

Return to this presentation after watching the video.

https://youtu.be/aixXLuTk_N8

Bowline

The Bowline requires a safety in order to use it in a Life Safety system.

The following two videos show a couple of methods of finishing the Bowline Knot.

Bowline Safety Videos

Copy and Past link below if link does not open.

Return to this presentation after watching the video.

The two videos below show two different ways to back up a Bowline.

https://youtu.be/Jj42B8eCOzc

https://youtu.be/DEBSCg5scQM

Critical Angles

What is the range we want our Multi-Point Anchor angels?

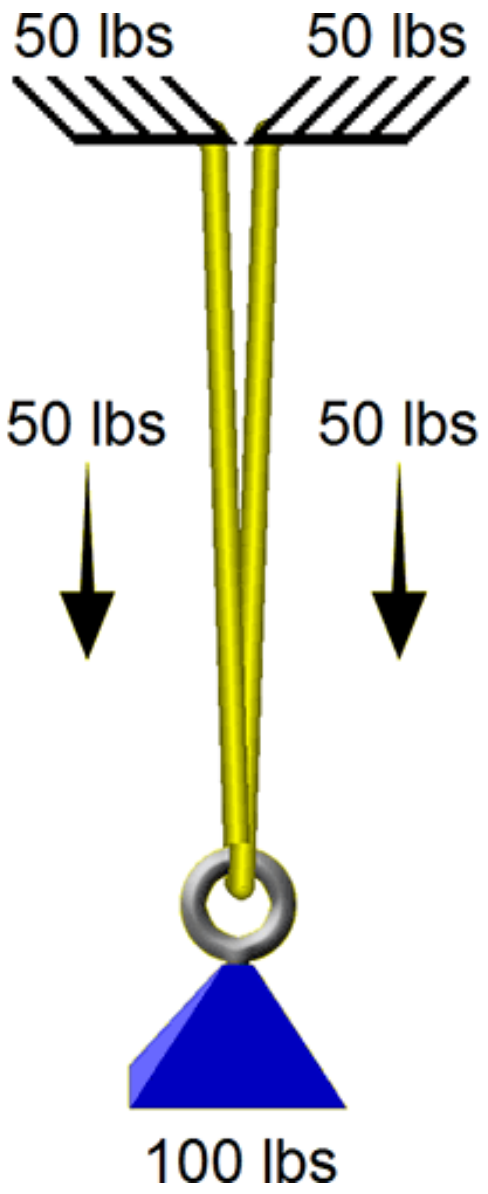
30-90 degrees

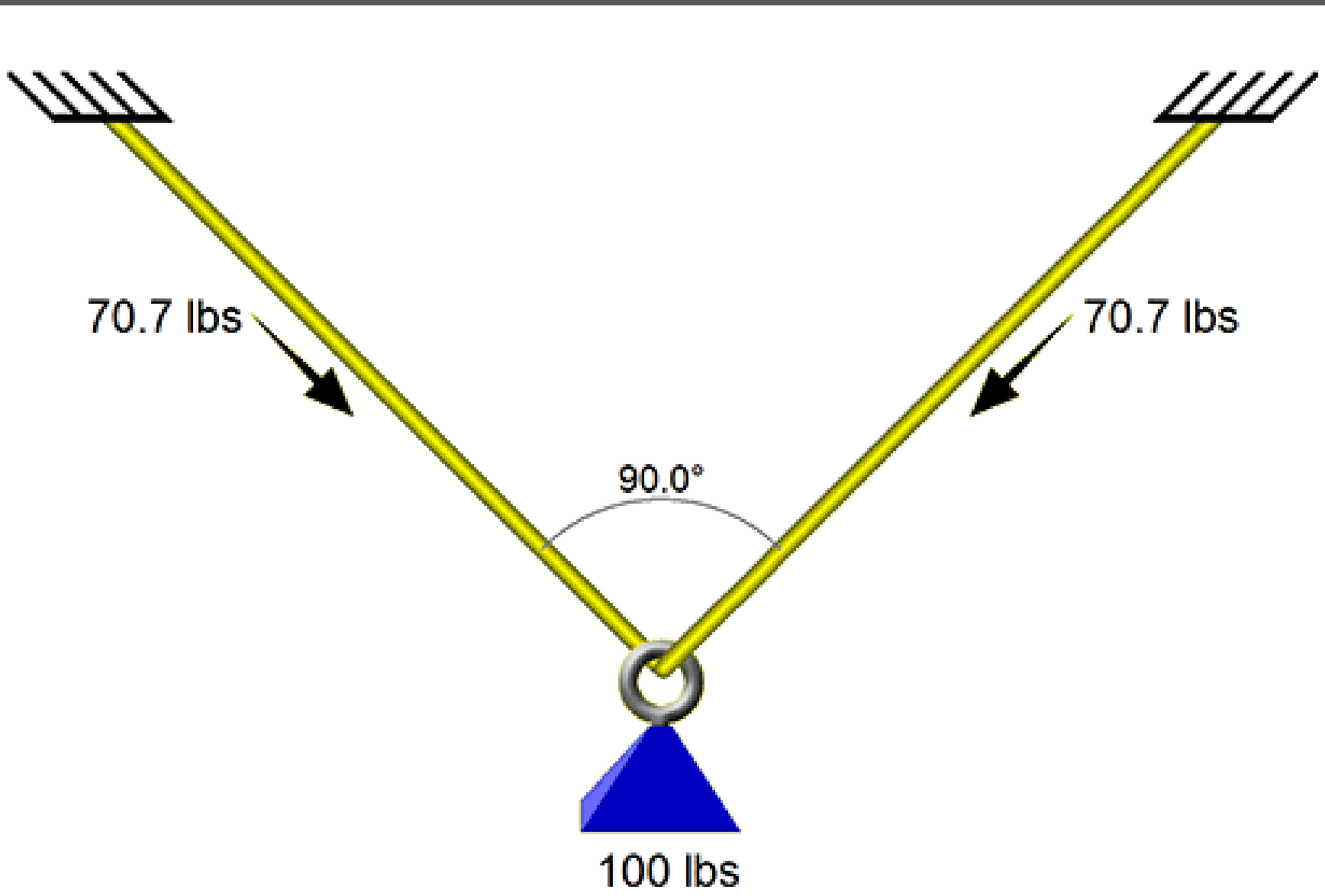
The Following Slides

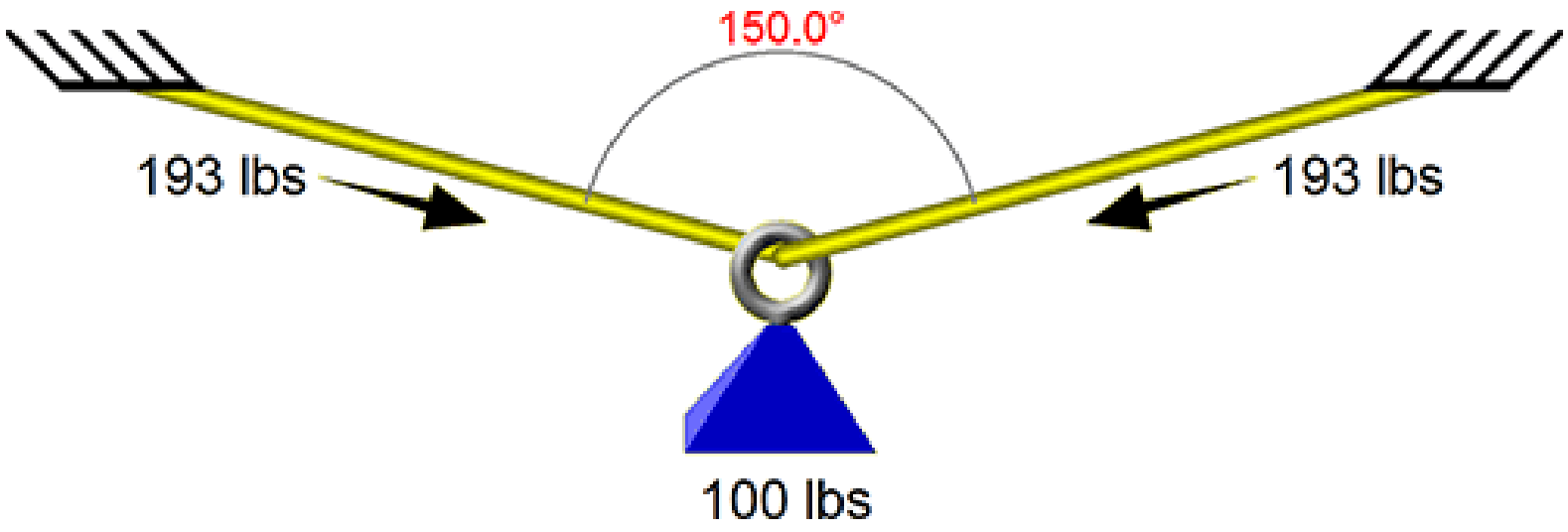
See how the amount of Force changes on each leg of the Anchor System despite the load staying the same.

The amount of Force applied can exceed the amount of the original Load.

This is extremely important when applying a large Load like a horse.


50 lbs
50 lbs
50 lbs
50 lbs
100 lbs

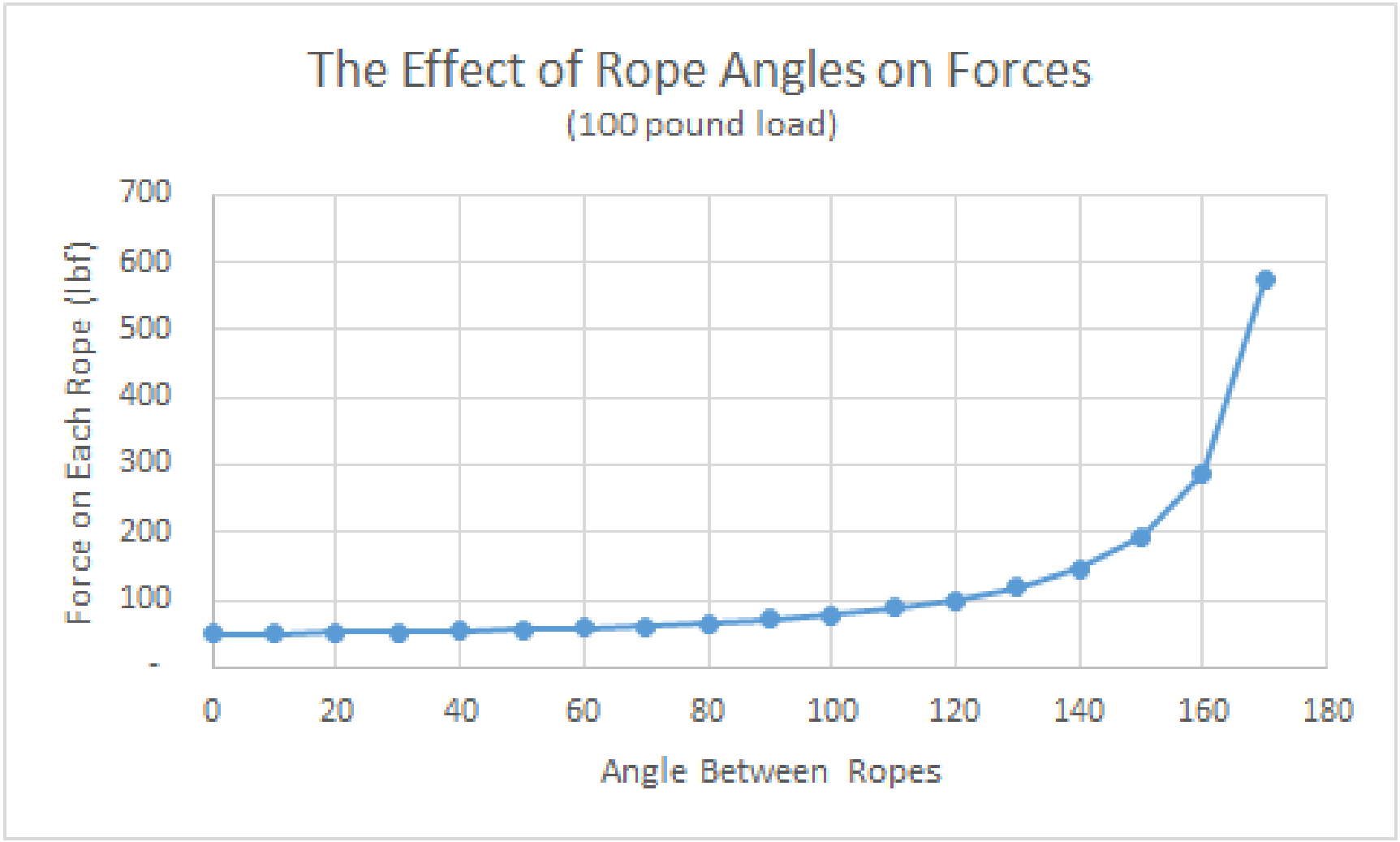

70.7 lbs
70.7 lbs
90.0°
100 lbs


150.0°
193 lbs
193 lbs
100 lbs

The Following Slide

See how the amount of Force applied to the legs of an Anchor System changes very little from 0-90 degrees.

After 90 degrees the amount of increased Force applied to the legs of the Anchor System goes up very fast.


The Effect of Rope Angles on Forces
(100 pound load)
Force on Each Rope (lbf)
700
600
500
400
300
200
100
-
0
20
40
60
80
100
120
140
160
180
Angle Between Ropes

COD

Change of Direction

Rules for Change of Direction (COD)

COD =

Increase Force to Anchor

COD after M/A =

Partial increased Force to Anchor

Before M/A =

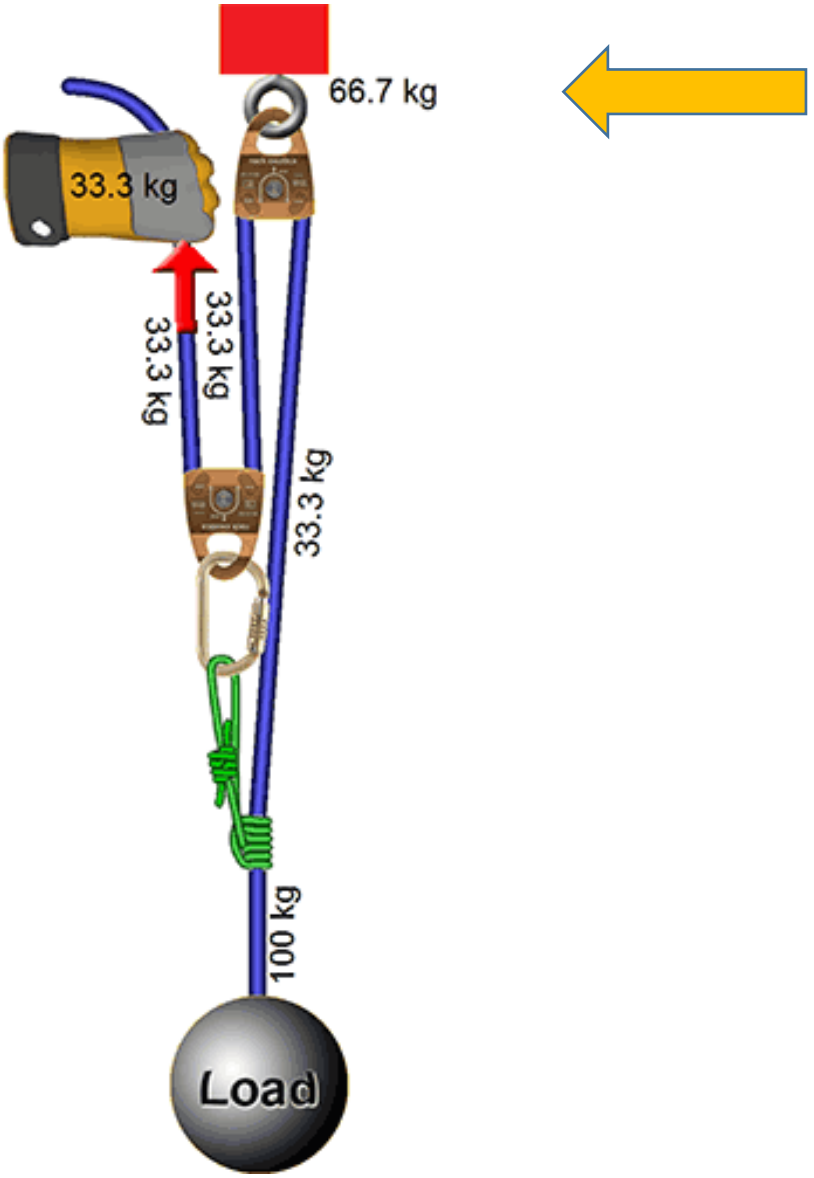
up to 2x the Load to the Anchor

Wide Angles are Good and decrease the amount of Force to the Anchor

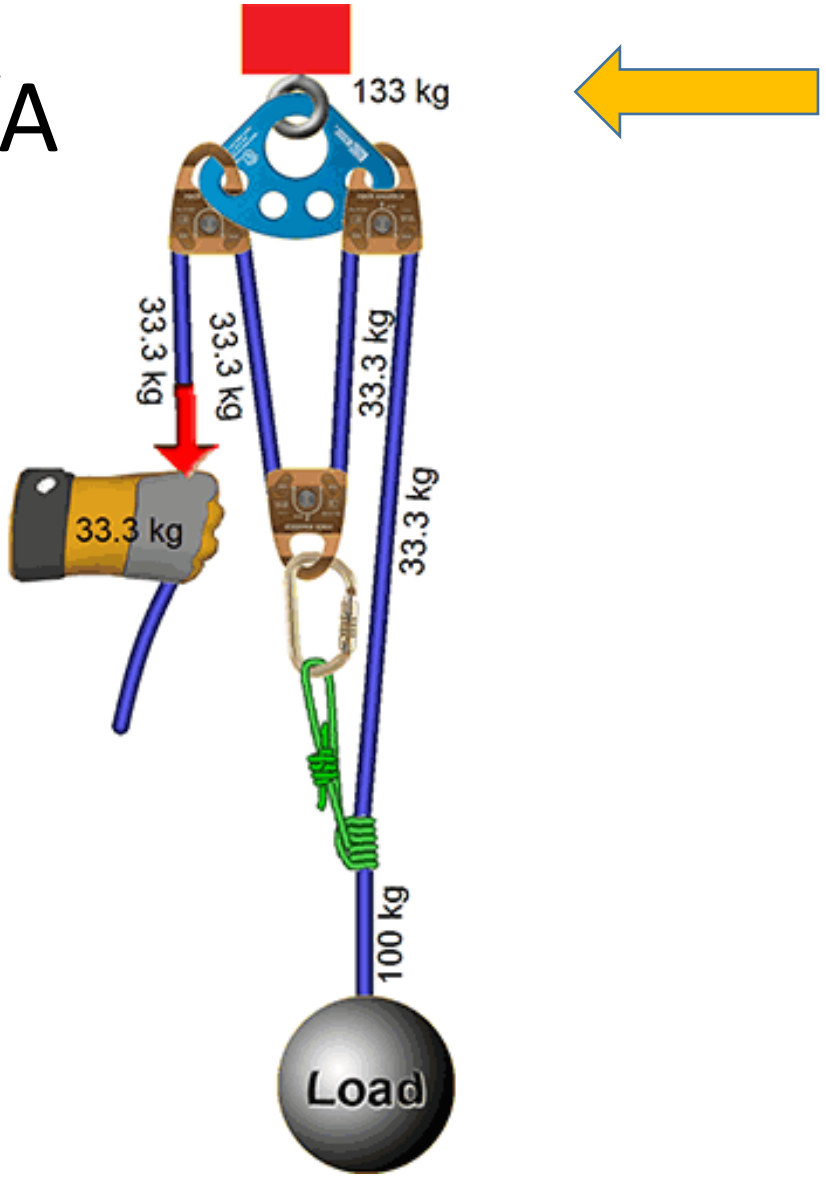
The Following Slides

- Notice how the amount of Force at the Anchor changes based on the presence of a COD.
- See how much more Force is generated when the COD is before the M/A.
- A COD should only be used if needed.

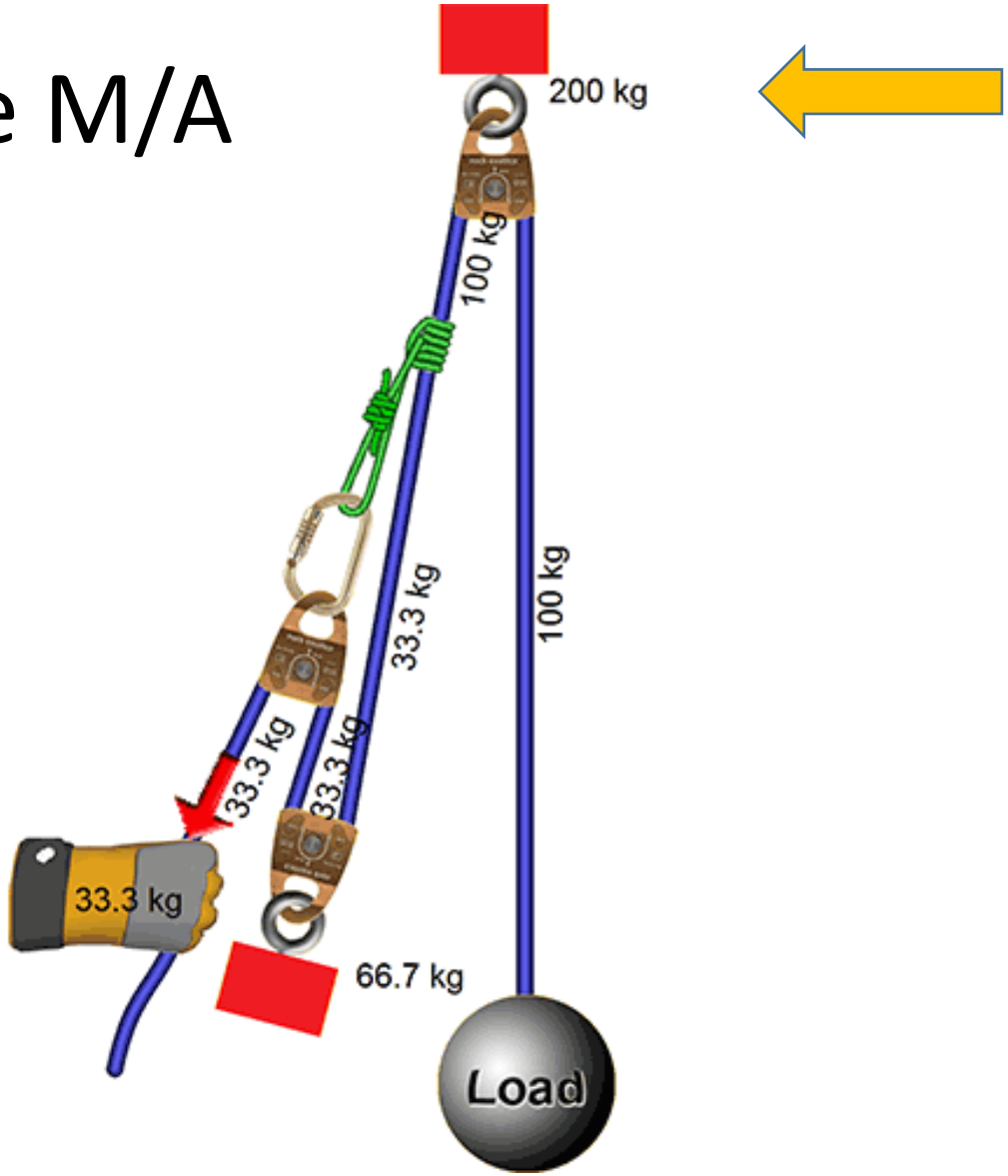
No COD



COD After M/A



COD before M/A



Critical Angle and COD Video

Copy and Past link below if link does not open.

Return to this presentation after watching the video.

https://youtu.be/lTwEhYYJqXw

Discussion Questions

- What is the Critical Angle Range?
- Why do we start the critical angle range at 30?
- What is a negative aspect of a Change of Direction?
- What is a positive aspect of a Change of Direction?
- Do you want the COD angle to be large or small?
- Can you have more than one COD before the MA?

Discussion Questions

- What is the Critical Angle Range? **30-90**
- Why do we start the critical angle range at 30? **To compensate for swing of Load**
- What is a negative aspect of a Change of Direction? **Increase Force to Anchor**
- What is a positive aspect of a Change of Direction? **Better working room**
- Do you want the COD angle to be large or small? **Large**
- Can you have more than one COD before the MA? **Yes**

This is a Blended Class and will require the completion of Hands-On Training

The following slides are a preview of the Hands-On Training that will be covered

Anchor Systems

Hands On

Single Point

Multi Point

Load Sharing

Self Equalizing

Hands On

Back Tie (Voodoo)

Picket System

Vehicle Anchor (vehicles in lot)

Webbing Shorten Technique

Let's Put It All Together in the Feild

Anchor Building

In a Scenario

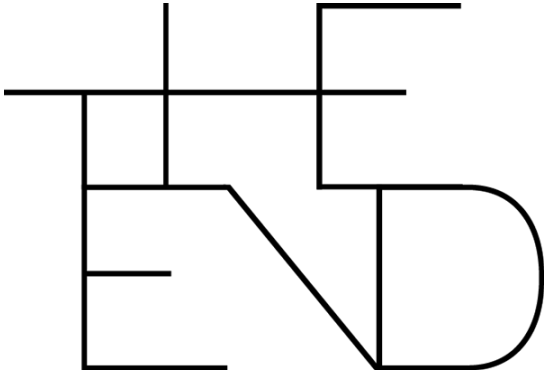
Post Questions on What's App.

Assignment

- Practice building different Anchors
- Practice the Bowline and know it solid before you use it
- Rope Challenge
  - Build a multipoint Anchor with one rope
- Attend the Animal Fire Rescue Operational Anchors Hands On Class

Let's See What You Know

- Go to the link below and answer some questions.
- https://docs.google.com/forms/d/e/1FAIpQLScsS0R6xBaLS40ZlX62MqXUpWLGH_Tf8qzpec4wxmZDo4rMlg/viewform?usp=sf_link
- If you get 80% correct you will get a Certificate of completion.
- You can take the Test as many times as you like.
- When you Complete the Hands-On part of the class email your Certificate to Austin for inclusion in your Task Book.



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Thank You For Attending

Ken Gilden