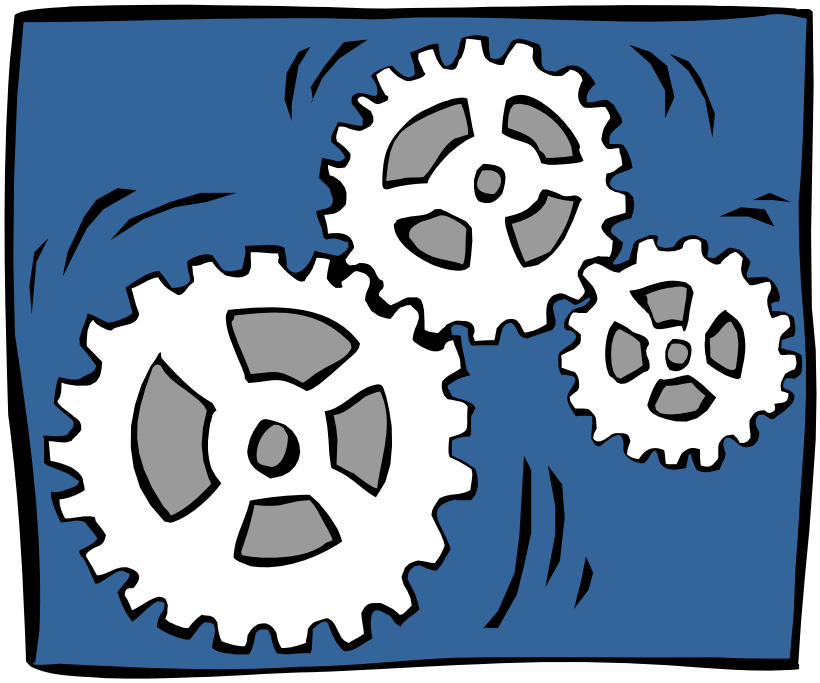
Science Olympiad Coaches' Clinic

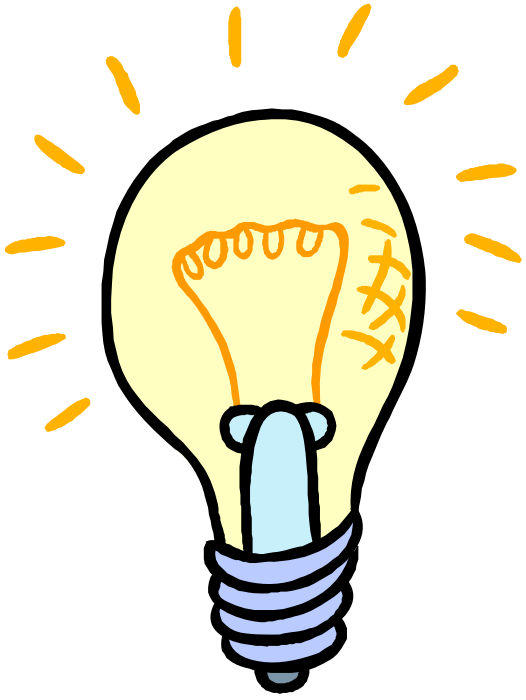
Mission Possible
For
"New Coaches"
-2007-

-AGENDA-



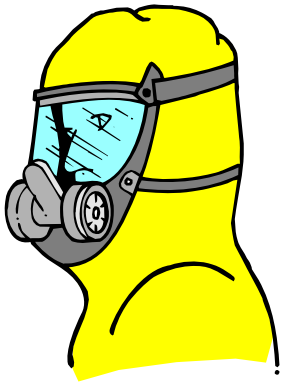
Event Description

Strategies
for
Getting Started



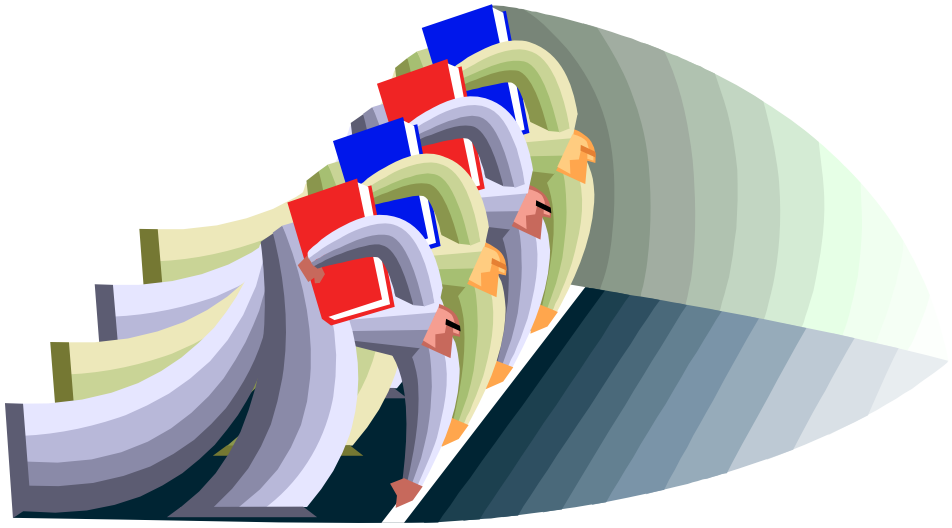
Examples

- **Safety**

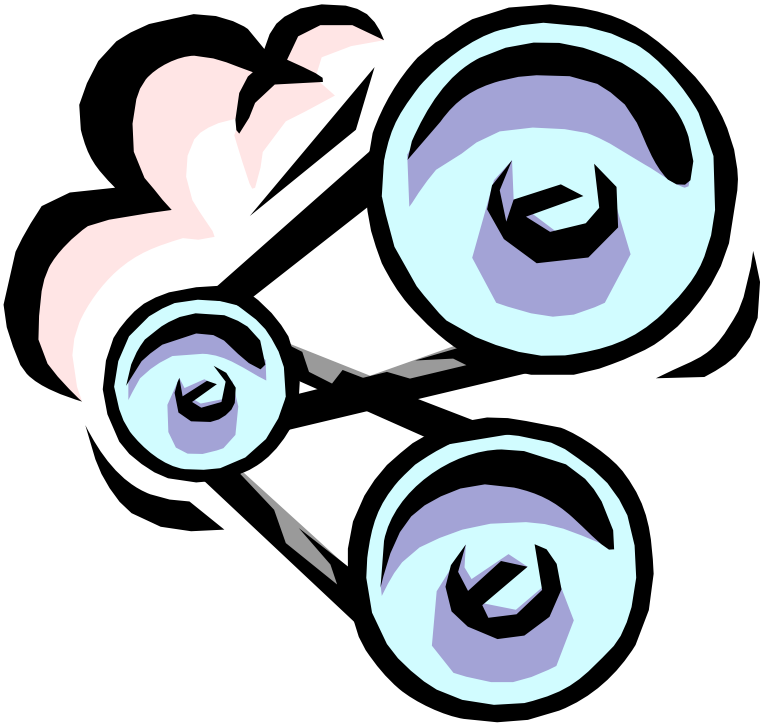


- **Requirements**

- **The Start**



- **Linking Simple Machines**



- **Loading Sand**

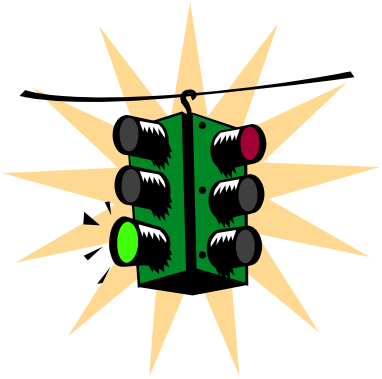
- **Task Completion**

Strategies
for
Getting Finished

Resources and Help

Questions

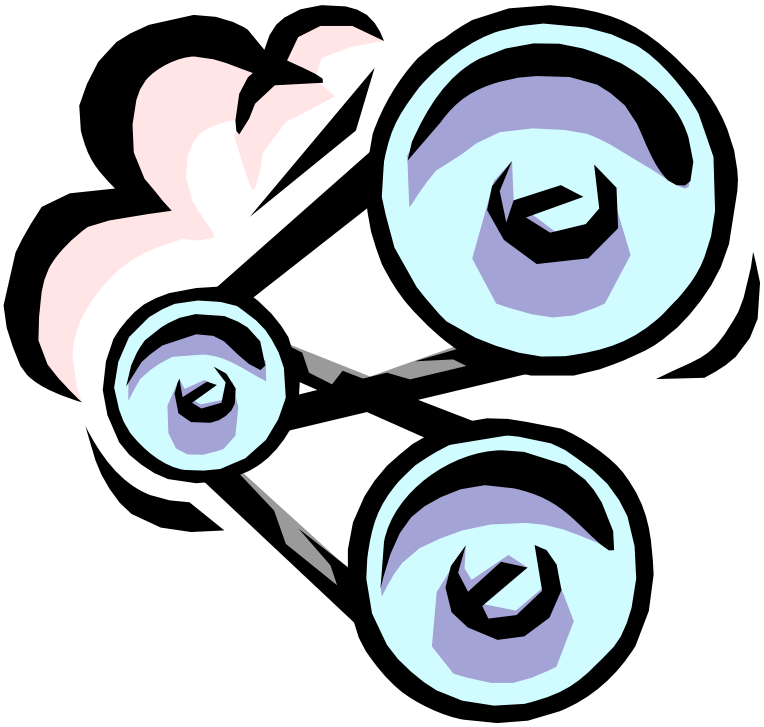
Do’s



&

Don’ts

- **Linking Simple Machines**



Resources and Help

Science Olympiad Coaches' Clinic
Mission Possible For "Novices"
-2007-

-AGENDA-

Event Description

Strategies for Getting Started

Examples

- **Safety**
- **Requirements**
- **The Start**
- **Linking Simple Machines (types)**
- **The Pause**
- **Task Completion**

Strategies for Getting Finished

Resources and Help

Questions

Mission Possible

For “Novices”

-2007-

New Coaches

-AGENDA-

Event Description- Ask two coaches to describe the event.

Strategies for Getting Started

- **Give an overview of the device to be built.**
- **Demonstrate machine types.**
- **Gather junk from old toys & junk draws.**
- **Gather tools.**
- **Students must know safety rules.**
- **Start device correctly.**
- **End device correctly.**
- **Add other simple machine types.**
- **Add bonus-simple machine.**
- **Adjust machines for ideal time.**

Examples

Safety (See “Tips for Beginners”)

- **Must have supervision at all times**
- **Use score sheet as a guide**

Requirements

- **Mention each one**
- **Constantly check student’s work**

The Start (demonstrate)

Linking Simple Machines

- **Explain “direct” linking**
- **Explain/demonstrate each type**

The Pause (demonstrate)

Task Completion (demonstrate)

Strategies for Getting Finished

- **Add a second round of machine types**
- **Finalize the order of machines**
- **Get everything to fit within the dimensions**
- **Write “Simple Machines List”**
- **Complete all steps (above) before deadline to submit the list**
- **Submit the List on-time**
- **Do not make any changes after the list is submitted**
- **Spend remaining time getting the device to operate in the ideal amount of time**
- **Make each step “fool-proof”**

Resources and Help-(Use the group to generate a list.)

Questions (See “Tips”.)

Do's and Don'ts
for
New Mission Possible Coaches

1. Don't go alone. Look for other teachers, parents, or community resource people to help.

2. Do get the regional schedule as soon as possible to check the event time.

3. Do contact the Regional Tournament Director to find out how, when and where to submit the Simple Machines List.

4. Do seek technical help for this event.

5. Don't exclude students; give all students a chance to participate.

6. Do encourage your youngest students to participate.

7. Do encourage your students to learn and to improve rather than focusing on winning.

8. Do attend a coaching clinic if possible.

9. Do talk with other coaches (even at a different level) for help.
   They will help you, even if they are competing against you!

10. Don't expect the students to pay for all supplies. Yard-sales can provide many good materials. Businesses will donate funds to help the team, <u>if they know</u> what your students are really doing.

11. Don't leave students unsupervised, especially when they are constructing the device.

12. Do check behind students when it comes to following the rules.

13. Don't assume that all of the rules have been followed (especially with new students).

14. Do call for help.

15. Do have fun!

16. Do celebrate your successes!!!!!!!!!

17. Do advertise your team's success and excitement among your supporters.

18. Do make video tapes of the entire process of building and operating the Mission Possible devices.

19. Do use the tapes for training next year and gaining support.

20. Do encourage older students to come back and help next year.

Mission Possible- B Division
Tips for Beginners
-2007-

1. Explain **<u>your</u> safety rules to the students. Include a discussion of materials and tools that are "off-limits". Demonstrate safe and appropriate procedures for cutting, hammering, gluing, and fastening materials.**

2. **Show the students the safety checklist that is on the score sheet.**

3. **Review the "Requirements" section of the score sheet and constantly check the size of the device and sequence of machines. Plan to meet all of these, since each is worth 20 points. <u>Every one of these is easy to meet.</u>**

4. Start by demonstrating each of the 8 simple machine types and how each is to be used to score points. Ask your team to design one example of each machine type.

5. Ask the team to link the eight simple machines together with the first one being the paddle W & A and the last one being the one that uses a lighter can to lift a heavier can. **Cover the whole tabletop in doing this.**

6. Have the team figure a way to complete the task using a simple machine. Check to make sure that all of the requirements for "task completion" have been satisfied by the action of this final simple machine.

7. **(Optional)** See if the team is willing to add another set of the 8 simple machine types somewhere in the middle of the first set. The order of machines can vary this time.

8. **Design one of the levers so that sand can be added slowly to a container**. Make sure that it takes 30 seconds to load the sand and that the lever operates the next simple machine (in sequence) after the sand is loaded.

9. Build a box that is **<u>smaller</u>** than the required dimensions (and open for viewing).

10. **Get everything to <u>fit inside</u> the box and have make sure that nothing will leave the dimensions during operation.**

11. **Check "all" requirements and the safety checklist again.**

12. Make a list that is "exactly" the same format as the one in the rulebook and check with your tournament director to see how and when to submit this list. **DON'T WAIT UNTIL THE LAST WEEK TO DO THIS!!!!! <u>*CUT OFF ANY CHANGESIN THE DEVICE!*</u>**

13. **Once the device is completed, spend the remaining time before the tournament making sure that the device is reliable and consistent (rather than adding more stuff for it to do).**

Mission Possible
Rules Discussion for B-Division
-2007-

1. Additional simple machines are allowed in the device. Although the limit on numbered machines is 16, others can be included but those must not be numbered. Only the numbered simple machines will be considered for points. The first and last simple machines used are specified in the rules and those must be numbered. **Include the un-numbered simple machines on the Simple Machines List.**

2. **A team will not be allowed to operate a device unless it passes the safety inspection.**

3. The rules state that "Chemical/Splash" Protection goggles must be worn, not just "impact protection" goggles. This type of goggles must be worn unless a national clarification allows alternative goggles.

4. In the event that a "stop" or "touch" occurs during operation of the device, a team may lose additional points for a simple machine if they bypass it or if "it" does not activate the next simple machine.

5. During a "stop", all three team members may help adjust the device to get it started and only one penalty will be deducted for that "stop".

6. In the case of breaking ties, disallowed **bonus** points will not be considered penalty points. Penalty points are figured for operating time that is greater than the OOT, objects leaving the device during operation, and for any touches of the device. (For Nationals, there are penalty points for a device that operates short of or beyond the OOT and for illegal adjustments for the sand delay.)

7. ***If the device is operating, such as sand falling into the container, the judges will probably require that the team let the device continue to operate without touching it. The team will not be allowed to estimate a length of time and then jump in and correct the device. Remember that the team is allowed to touch the device *only* if it stops, jams, or fails to operate.**

8. **TIME:** Note that the operation time, under 60 seconds, is rounded **up** to the next whole second for assigning points. For determining penalty points, the time over 60 seconds is rounded to the closest second. Time will also be recorded to a tenth of a second for breaking ties. (At Nationals, once the exact operating time, as determined by the judges, is subtracted from the OOT then the difference is used to determine penalty points. Any fraction of a second in difference will be rounded "up" to the next whole second.)

2007 Mission Possible- B Division
Regional Score Sheet

School: ____

Names: ___________________ ___________________ ___________________

SAFETY CHECK: **Mark "true" or "false" for each question below.** **___ No spills?**

___ No uncontrolled projectiles? **___ No electricity used?** **___ No hazardous materials?**

___ No flammable substances? **___ Used specified goggles ?** **___ No other safety hazards?**
If "true" is marked for all items, this device is certified as safe to operate by ____________.

REQUIREMENTS: **Check each one that is met. Each counts 20 points.**

_____Wearing goggles properly without prompting **_____Has valid dimensions (80 X 50 X 50 cm.)**

_____No batteries or electricity used **_____Uses a proper starting mechanism**

_____Used only sequential simple machines **_____Correct format for Simple Machines List**

_____Accurate Simple Machines List **_____SML submitted properly & on-time**

_____Limits numbered simple machines to 16 **_____End device with proper simple machine**

SCORING: **# Requirements met ______ X 20 =_______ (max.=200 pts.) ------------------→ = ______**

Ready Time=_______ - Begin Set-up Time _______ = _______ min. Add 30 pts. if ≤ 30 min. = _______

# of SM accepted from SML = ________ minus the # that failed ________ = ________ X 10 = _______
(max. =160)

Number of first-time uses of simple machine types (limit=8) = _______ X 20 points = ________

Number of 2nd-time uses of simple machine types (limit=8) = _______ X 10 points = ________

Were all requirements for Task Completion met within "MOT"? ______ If YES, add 100 pts. = ________
"Can" is unopened, unmodified and has label? ____ Only the" can" provides lifting force? ____
No counterweights or stored energy was used? ____ If false to any, explain on back of sheet.

Operation time = ______.___ sec. Number of seconds & part of sec. ≤ 60 = ________ X 2 = ________

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BONUS: **Does the device pause to load sand into a container on a lever? ________**
If "yes", how many seconds (rounded) does the device load sand before operating the next simple machine? (Max. is 30 seconds and 30 points) ______ sec. X 1 = ________

ADD ALL POINTS SCORED ABOVE THIS LINE = **Positive Sub-total = ________**

PENALTIES: **Object (solid or liquid) left boundaries? _____** **If Yes, enter 50 = ________**
Number of times the device was touched, adjusted, or restarted = _____ X 19 = ________
Number of seconds (rounded), between 60 and 180, that device operated = ______ X 1 = ________

Penalty Points Sub-total = _________

Positive Sub-total ________ minus Penalty Sub-total ________ = Final Score = _________

Rules Discussion
(*Regional-State-National)

-2007-

Part of Rules Regarding	Regional	State	National
Max. Points for Sand-Loading on Lever	30	30	60
Load/Effort Ratio Bonus	None	9	9
Ideal Operation Time	60 sec.	60 sec.	To Be Assigned (90-150 sec.)
Maximum Allowed Time of Operation	180 sec.	180 sec.	Assigned Time plus 60 sec.
Penalty Points for Time of Operation	1 pt./sec.>60 rounded (max.=120)	1 pt./sec.>60 rounded (max.=120)	2 pts./sec. or part-sec. diff. Assign. Time (max.=120)
Penalty for Touches	19	19	19
Penalty for Objects Leaving Boundaries	50-one time only	50-one time only	50-one time only
Additional Penalties Points	None	None	200 for illegal time-alterations