General Principles of Shop Safety

Critical Thinking: Be An Operator

Version History:

V #	Date	Author	Short Listing / Description of Changes
1	Apr. 30/12	D.B. McCowan	Initial Version – uploaded to OCTE Safety Portal (McCowan_1.4_Safety_Operator_Apr30_12.doc)
2	June 3/12	D.B. McCowan	Modest clarification on page 4: added ***"In your story... between "Driver" and "Operator"".*** Added "Critical Thinking" to subtitle on each page.

Note to Teacher re Differentiated Learning:

1. DL-L – For students with lower abilities. (Page 1 of this document)

1 Special Insight

Don't just be a driver. Be an operator.
Bill McCowan

2 A True Story

*The 11 or 12-year-old boy was using the 1939 Ford 9N to cultivate the heavy Scarborough clay in the big garden. Suddenly what appeared to be steam became visible at the front of the tractor. He shut the tractor off and took a look around. The belt had fallen off the generator. He went to get Dad for what to do next... After a short analysis, corrective action and a lecture... "**Don't just be a driver. Be an operator.**"*

3 Think Critically -- Look for Some Meaning and a Lesson

QUESTION:

What is the difference between a "Driver" and an "Operator"? Explain how safety is involved in this story.

4 Safety Reminder

The user is responsible for using a product according to the product instructions.

5 Peer Assessment

NOTE: In the feedback, the Peer Assessor must make the other student think -- don't just give the answer! Give the student a clue for one item that will help get your colleague a better mark

Assessor's Name and Additional Notes:

General Principles of Shop Safety
Critical Thinking: Be An Operator

Note to Teacher re Differentiated Learning:

1. DL-M – For students with moderate / mid-range abilities. (This should generally be the default, always involving some level of critical thinking.) (Page 2 of this document)

1 Special Insight

Don't just be a driver. Be an operator.
Bill McCowan

2 A True Story

*The 11 or 12-year-old boy was using the 1939 Ford 9N to cultivate the heavy Scarborough clay in the big garden. Suddenly what appeared to be steam became visible at the front of the tractor. He shut the tractor off and took a look around. The belt had fallen off the generator. He went to get Dad for what to do next... After a short analysis, corrective action and a lecture... "**Don't just be a driver. Be an operator.**"*

3 Think Critically -- Look for a Lesson in the Context of Your Goals

QUESTION:

Interpret the "Special Insight" above – what does it mean to you? In particular, what does this Special Insight mean to you in the context of your own personal career goals? In the career of your choice, what would be the characteristics of a "Driver"? What would an "Operator" look like? How is safety connected into this critical thinking opportunity?

4 Safety Reminder

The user is responsible for using a product according to the product instructions.

5 Peer Assessment

NOTE: In the feedback, the Peer Assessor must make the other student think -- don't just give the answer! Give the student a clue for one item that will help get your colleague a better mark

Assessor's Name and Additional Notes:

General Principles of Shop Safety
Critical Thinking: Be An Operator

Note to Teacher re Differentiated Learning:

1. DL-H -- For students with higher abilities or, ideally, "for any students who want to do more". (Pages 3-4 of this document)

1 Special Insight

Don't just be a driver. Be an operator.
Bill McCowan

2 A True Story

*The 11 or 12-year-old boy was using the 1939 Ford 9N to cultivate the heavy Scarborough clay in the big garden. Suddenly what appeared to be steam became visible at the front of the tractor. He shut the tractor off and took a look around. The belt had fallen off the generator. He went to get Dad for what to do next... After a short analysis, corrective action and a lecture... "**Don't just be a driver. Be an operator.**"*

3 Think Critically about Systems and Dig Down to Detail of Personal Interest

Suppose you want to be a mechanical engineer. So you should be interested in mechanisms and how mechanisms are connected together into a functional system.

Suppose you want to be some other kind of engineer. So you should be interested in some other kind of system(s).

All workers work within a system – so start thinking about the systems in which you might like to work and start asking yourself questions. Every industry has drivers and operators – strive to be an operator. Start thinking now about what it takes to be an operator in an industry that interests you.

WRITE YOUR OWN QUESTION(S) AND DIG DEEPER INTO THE SYSTEM:

Interpret the "Special Insight" above – what does it mean to you? In particular, what does this Special Insight mean to you in the context of your own personal career goals? In the career of your choice, what would be the characteristics of a "Driver"? What would an "Operator" look like? How is safety connected into this critical thinking opportunity?

Sample questions for students interested in engineering and industrial design:

On the internet, do some research on the Ford 9N tractor. If you can`t find an answer to a question, ask your own questions to get closer to what you need. Where did the steam come from in the situation explained above? What might cause this to happen? What could have been the end result without intervention? Does the 9N front axle rotate up / down or otherwise move somewhat with the terrain (crossing plough finishes etc)? How close is the generator to the front axle? When on the tractor seat, can the driver see the generator and its moving parts? What drives the generator? What is the purpose of the generator? Identify an important output from a generator and state its units of measure. What connecting parts are also involved in driving the generator? What else is driven along with the generator and what is its purpose? Think about machine design. As a machine designer, what could you do to ensure that the person on the tractor seat knows whether or not these parts are all doing what they are supposed to be doing? What do you need to tell the user to make sure all goes as planned – and safely?

Ok, so you don`t want to be an engineer. Then write your own Driver / Operator story and ask yourself some questions that relate to a career in your own area of interest. In your story in relation to the career of your choice, be sure that you "get to the essence of driver vs operator" – ie distinguish between "Driver" and "Operator".

4 Safety Reminder

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5 Peer Assessment

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Assessor's Name and Additional Notes: