5: Lathe Training Video Worksheets

Video # 1: Machine Shop 8 – Lathe 1 (42:37)
http://techtv.mit.edu/genres/24-how-to/videos/144-machine-shop-8

- Components & Setup
  - List the components of the lathe: __________________________
  - __________________________
  - __________________________
  - What component supplies power to the machine? ______________
  - To support long pieces, which component is used? ______________
  - What rides on the bed of the lathe? __________________________
  - Note: Power feed systems different on lab lathes

- Turning Tools
  - How are lathe tools held? __________________________
  - __________________________
  - What does knurling do? __________________________
  - __________________________
  - What tool has a long thin blade to cut off pieces from stock? ___________
  - __________________________

- Turning and facing
  - Before removing chips, always do what? __________________________
  - __________________________
  - After a roughing pass, what is performed? __________________________
  - What does breaking an edge mean? __________________________
  - __________________________
  - Which produces a smoother finish: Rough pass or finishing pass? _________
  - __________________________
  - Which produces a smoother finish: Manual or automatic feed? _________
  - __________________________
- Cutting off a part:
  o What tool is used for this operation? ________________
  o At what angle does this tool need to be? ________________
  o Where should the tip of the tool be? ________________
    ________________
  o Can deep cuts be performed ‘dry’? ________________

- Drilling
  o What should be checked before drilling? ________________
    ________________
  o Where is the drill chuck inserted? ________________
  o How do you start drilling a hole? ________________
  o How much material should be removed at once? ________________
    ________________

Honor Pledge: I watched this video fully focused and without distraction. No answers were dishonestly obtained. Signed: ___________________________ Date: __________

Video # 2: Machine Shop 9 – Lathe 2 (47:02)
http://techtv.mit.edu/genres/24-how-to/videos/134-machine-shop-9

- Tapping
  o What does tapping a hole do? ________________
    ________________
  o What tool can be used to support the back of the tap handle? ________________
    ________________
  o Can most materials be tapped dry? ________________

- Boring
  o What tool is used for this operation? ________________
  o Should manual feed be used for boring holes? ________________
    ________________

- Knurling
o Does this setup need to be precise? ____________________________

o Should the face of the knurler be square to the part? _________________

o Do both wheels need to come in contact with the part? _________________

o Should you come in fast or slow to the part? ___________________________

- Cutting Tapers
  o Is the same tool used for turning as for this operation? _________________
  o What component of the lathe is used? ________________________________

- Turning shafts
  o Why is turning shafts special? _______________________________________
  o What tool is used to alleviate this problem? ____________________________
  o How should the hole for this be milled? _______________________________

- Single Point Thread Turning
  o What is the angle on this tool? _________________________________
  o Should this tool be perpendicular to the material? ______________________
  o Note: Thread controls differ per machine
  o At what angle should the compound be set? ____________________________

Honor Pledge: I watched this video fully focused and without distraction. No answers were dishonestly obtained. Signed: ____________________________ Date: ____________

Video # 3: Machine Shop 10 – Lathe 3 (29:31)
http://techtv.mit.edu/genres/24-how-to/videos/172-machine-shop-10

- Lathe Chuck
  o Is it easy to hold a piece with a large hole in the chuck? _________________
  o If it doesn’t have a hole and the piece is too big to fit in the chuck, how can the piece be held? ________________________________

- Lathe Arbors
o What does allow for? ______________________________________________________
________________________________________________________

o Describe a lathe arbor: __________________________________________________
________________________________________________________

o For low aspect ratio parts, what should be made? __________________________
________________________________________________________

- Turning between centers
  o What is used to react to the cutting torque? ______________________________
   __________________________________________________________

  o Should a dead or live –center be used on the tailstock? ____________________
    __________________________________________________________

- Face plates
  o What is put in the T-slots to mount the part to the face plate? _____________
    __________________________________________________________

  o Is this safe? _________________________________________________________
   __________________________________________________________

  o For thin materials, how should the material be affixed to the face plate? ___
    __________________________________________________________

Honor Pledge: I watched this video fully focused and without distraction. No answers were dishonestly obtained. Signed: _____________________________ Date: ____________