UNIT III: CONSTRUCTION PREPARATION

TOPIC B: SEWING TOOLS AND EQUIPMENT

OBJECTIVE: The students will be able to choose and use appropriate sewing tools and equipment as they construct their projects.

CONCEPT: Having the correct type and size of sewing tools and equipment can mean the difference between frustration and success. It is always much easier to get the job done when the appropriate equipment is available.

COMPETENCIES:

1. Identify standard sewing tools and equipment used in clothing construction.

2. Select appropriate size and type of hand needles, machine needles, and sewing pins for fabric and purpose.

3. Review safety procedures for machines, sergers, and other sewing equipment.

4. Review sewing machine and serger parts and functions.

5. Thread sewing machine and serger correctly.

6. Demonstrate adequate control of sewing machine, serger, and other equipment.

7. Apply proper procedures for cleaning and maintaining sewing equipment.
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<td>2. Sewing Tools: Big and Small</td>
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<td>6. The Sewing Machine Book and Video</td>
<td>Copy of book and video</td>
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<td>Overhead transparencies or posters of machine parts, threading sequence</td>
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<td>9. Serger Samplers</td>
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<td>Cleaning supplies: brushes, oil, absorbent rags, paper towels, cleaning solution, etc.</td>
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<td>Machine instruction manuals</td>
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ACTIVITIES/OPTIONS

Option 1: Sewing Tools: Big and Small
Follow the guidelines given on SEWING TOOLS: BIG AND SMALL and adapt this introduction to the types of sewing equipment required in your particular setting.


Option 2: Sewing Tools: Big and Small WordSearch
Have the students complete the student activity guide, SEWING TOOLS: BIG AND SMALL WORDSEARCH.

Option 3: On Pins and Needles
Using the teacher background information and the overhead transparencies, explain to the students about the different kinds and sizes of pins and needles available along with information about the correct use of each type. It would be good to have samples of a large variety of types and sizes for the students to compare. The teacher might take the overhead transparency patterns and enlarge them to poster size to hang in the classroom for reference throughout the year.


Option 4: Sewing Safety
Review the safety procedures/guides that need to be followed as various types of sewing equipment is used with the students. Have the students record these guidelines on the student activity guide, SEWING SAFETY.

Note: For liability purposes, the teacher should also be certain that every student in the class has completed the student activity guide and should require the students to keep them in their folder or tote tray. Then, if an accident should occur, the teacher has proof that the guidelines were presented for the students to follow. This should be done in every class.

Option 5: Sewing Machine Parts and Functions
Follow the guidelines provided on pages I-III-84 and I-III-93 for this activity. By using the teaching strategy outlined, two or three things can be taught simultaneously, and the students won't become so bored with the details of sewing machine parts and functions. Several stitching guides have been provided for use with this activity, along with suggestions for additional teaching aids. The machine diagram can be used as a student activity.
ACTIVITIES/OPTIONS

guide as the machine parts and their functions are presented. The teacher can also demonstrate the proper use of the machine as the lesson progresses.


Note: To make the stitching pattern exercises more realistic, the patterns can be traced with a transfer pencil and ironed onto pieces of fabric. A classroom set of the stitching patterns could be used repeatedly and still provide the students a way to demonstrate their ability to control cloth, which feeds through the machine much differently. It also eliminates the problem of dulling machine needles with paper.

Option 6: The Sewing Machine Book and Video
As a backup for students who were absent during these machine introduction sessions, use the book and video, THE SEWING MACHINE, developed and produced by Helen Hancey of Granite School District. This book and video introduce the students to the sewing machine parts and their functions, how to thread the machine, and the basic beginnings to sewing construction. The book offers self-help instruction that goes along with the video.

Option 7: Sewing Equipment Bag
For a quick and easy, one-day type project, especially for beginning seamstresses, have the students make a SEWING EQUIPMENT BAG from the directions provided. This project will reinforce the basic steps of machine control, plus the students will learn how to make a casing, clean finish an edge, insert a drawstring, and use pressing equipment. The student directions can be printed on the front and back of the same sheet.

Option 8: Serger Parts and Functions/Machine Control
Use overhead transparencies or enlarged diagrams on poster board of the sergers in your classroom. (Fairly clear diagrams can be found in the instruction manuals.) Number each part you would like the students to be able to identify. Using the enlarged diagrams or transparencies, review the parts of the serger and their functions. Cover a few parts at a time, then stop and give the students an opportunity to run some fabric through the machine to practice controlling the machine. Repeat the procedure until all the parts have been covered. Demonstrate the process of threading the machine for the students. (Diagrams of these procedures will also be in the instruction manuals for enlargement. A diagram of a serger is included as an example of how to prepare for this activity.) Have the students work in pairs to thread the serger.
ACTIVITIES/OPTIONS

Option 9: **Serger Samplers**
Have the students follow the directions of the student activity guide, SERGER SAMPLERS, to practice on the sewing machines and the sergers. While the students are working on their samplers, the teacher can have the students demonstrate their ability to thread the sergers.

Option 10: **Sewing Equipment Operator's Checklist**
Give each student a copy of the SEWING EQUIPMENT OPERATOR'S CHECKLIST and begin having the items listed checked off by the instructor as the tasks are completed.

Option 11: **M & M Day (Machine Maintenance)**
About once a month, have an "M & M" day in one class to clean and care for the equipment in the textile technology lab. Rotate the day through all classes so everyone learns. When all of the machines have been cleaned, oiled, cared for, and checked off, the class gets M & Ms as a reward.

The teacher will need to introduce the main considerations for care and maintenance, demonstrate the how-tos, supply the equipment, and let the students do the work. The teacher should refer to the specific instruction manuals for the maintenance required. When the students have completed the work, have each student thread and operate the machine, with fabric, he/she has cared for during the maintenance activity.

RESOURCES

**Book and Video**

Hancey, Helen-Louise, **THE SEWING MACHINE**, 8664 Snow Mountain Drive, Sandy, UT 84093, 801-942-2502, $29.95
ASSESSMENT/EVALUATION QUESTIONS

1. Identify standard sewing tools and equipment used in clothing construction.

MATCHING:

_D_ 1. Pins used on a woven fabric
_E_ 2. Item used for marking fabric
_A_ 3. Item that helps you "unpick" a mistake
_C_ 4. Pins used on a knit fabric
_B_ 5. Used as a measuring tool

A. SEAM RIPPER
B. SEAM GAUGE
C. BALL-POINT PINS
D. SHARP PINS
E. TAILOR'S CHALK

6. "Scissors" are better for cutting fabric than "shears."
   A. True
   B.* False

7. Rotary cutters may be used on any table or counter top.
   A. True
   B.* False

8. Shears have longer blades and bent handles so the blade will be flat on the table when cutting.
   A.* True
   B. False

9. The rotary cutter and mat is a fairly recent invention for use in the textile industry.
   A.* True
   B. False

10. The rotary cutter and mat are used instead of ________ for cutting out sewing projects.
    A. Pins
    B.* Scissors
    C. Measuring tapes
    D. Pinking shears

11. A serger is different than a conventional sewing machine. Put a check by each item listed that is different. (There are four (4) correct answers.)
    A.* It takes more than one spool of thread to operate
    B. It operates on only one spool of thread
    C.* It has a small knife that trims the fabric as it sews
    D.* It makes a nice finished edge on the fabric so it doesn't fray
    E.* It uses a lot more thread and sews much faster
    F. It uses a lot less thread and sews much slower
ASSESSMENT/EVALUATION QUESTIONS

12. Sergers are used a lot in the sewing industry because:
   A. They can sew so much faster
   B. They can do several operations at once
   C.* Both "a" and "b" are correct
   D. They are so easy to thread

2. Select the appropriate size and type of hand needles, machine needles, and sewing pins for the fabric and purpose.

   1. Which of the following might cause skipped stitches?
      A.* Needle inserted incorrectly
      B. Upper tension too tight
      C. Pulling the fabric when stitching

   2. The machine needle should always be threaded from:
      A. The front to the back
      B. The side with the short groove
      C.* The side with the long groove

   3. If your fabric keeps snagging while you're sewing, the problem probably is:
      A.* Your needle is dull or blunt and you should replace it
      B. You are sewing too fast
      C. Your machine isn't threaded right
      D. Your needle is in wrong

   4. If your thread keeps breaking or your machine needle keeps coming unthreaded, it probably means that:
      A. The needle is dull or blunt
      B.* The needle is not in right
      C. The machine isn't threaded right
      D. You are sewing crooked

   5. A student is using a size 7 hand needle and finds that it is too small for the task assigned. The student should use a:
      A.* Size 5, because the smaller the number, the larger the needle.
      B. Size 10, because the larger the number, the larger the needle.

   6. Sharps are an all-purpose type of hand-sewing needle.
      A.* True
      B. False
ASSESSMENT/EVALUATION QUESTIONS

7. After needles have been removed from the package and used, they should be stored in:
   A. An emery bag
   B. A box with the pins
   C.* A pin cushion

8. Pins and needles should not be left in an emery bag because:
   A. They are not convenient
   B. The points become blunt
   C.* They will rust

9. When replacing a sewing machine needle it is important that the:
   A. Groove side of the needle face the thread
   B. Groove side of the needle face away from the thread
   C. Needle be inserted to the top of the socket
   D.* Both A and C answers are correct

10. If the needle is in the machine wrong, the result is:
    A. Uneven tension
    B.* Thread breaks
    C. Puckered seams

11. If the fabric puckers and pulls at right angles to the stitching, it means:
    A. The tension is too tight
    B. You are sewing too fast
    C.* The needle is blunt
    D. None of the above

12. If your machine is skipping stitches, it could mean that:
    A. The needle is not in correctly
    B. The needle is not the right size for the fabric
    C. The thread is not the right type for the fabric
    D.* All of the above
ASSESSMENT/EVALUATION QUESTIONS

3. Review safety procedures for machines, sergers, and other sewing equipment.

   1. You should ALWAYS quickly check your machine to make sure it is on the proper setting BEFORE you begin sewing.
      A. True
      B. False

   2. Always leave your area picked up and your machine turned off.
      A. True
      B. False

   3. A sewing machine is a safe piece of equipment when:
      A. Safety rules are followed
      B. Machines are kept in good working order
      C. The operator remains alert during operation
      D. All of the above

   4. When replacing the needle, the operator's feet should be resting on the foot control lightly.
      A. True
      B. False

   5. When cleaning the machine, the motor should be:
      A. On
      B. On, but feet should be off the foot control
      C. Off

   6. When the machine is not in use:
      A. Raise the presser foot and needle and turn off the motor
      B. Lower the presser foot and needle and turn off the motor
      C. Lower the presser foot, raise the needle, and turn off the motor

4. Review sewing machine and serger parts and functions.

MATCHING:
Group 1:

_B_ 1. Where the bobbin is located

_A_ 2. Allows for a very small stitch or large stitch

_D_ 3. Needs to be in highest position every time you begin and end a seam

_C_ 4. Provides a way of raising or lowering the needle manually

A. STITCH LENGTH CONTROL
B. BOBBIN CASE
C. HAND WHEEL
D. THREAD TAKE-UP LEVER
ASSESSMENT/EVALUATION QUESTIONS

Group 2:

_D_  5. Supports fabric during sewing; has lines on it and an oval hole where the needle goes through

_C_  6. Holds fabric against the feed system; snaps or screws on and off

_B_  7. Thread must be on one side of this metal piece

_A_  8. Is located on the back of the machine; lets you raise and lower the presser foot

Group 3:

_F_  9. Lowers and raises the feed-dog

_B_  10. Holds the bobbin; allows the bobbin to turn and form the stitch; provides bobbin thread tension

_E_  11. Moves fabric along as you sew

_C_  12. Holds the bobbin while winding it

_A_  13. Holds the thread inside the machine

_D_  14. Provides tension on the thread when winding the bobbin

Group 4:

_J_  15. Turns the light off and on

_I_  16. Stops needle movement during bobbin winding

_H_  17. Controls the movement of the take-up lever and needle; can be controlled by power or by hand; should always be turned toward you

_G_  18. Controls how fast the machine sews

Group 5:

_N_  19. Moves the needle to different positions: center, right, and left

_M_  20. Fits around the feed dogs; the needle goes through it; has a seam guide on it

_L_  21. Holds the needle in place

_K_  22. Carries the thread and pierces the fabric
ASSESSMENT/EVALUATION QUESTIONS

Group 6:
P. 23. Holds fabric in place while you sew
Q. 24. Allows the machine to stitch backward
O. 25. Lifts and lowers the presser foot
O. 26. Turns sewing machine on or off

O. 27. Holds spool of thread in place
T. 28. Sets width of the zigzag stitch
U. 29. Sets the length of the stitch
V. 30. Shows you which type of stitch the machine will sew

S. 31. Holds the thread in place on sewing machine
X. 32. A place to cut the thread(s) without using scissors
Z. 33. Adjusts the tension on the thread as required for a particular project
W. 34. Pulls thread from the spool

35. Which part of the machine moves the fabric through automatically?
A. Feed dogs
B. Spool pin
C. Tension control
D. Bobbin case

36. Where should both upper thread and bobbin thread be when you begin to sew to avoid tangles?
A. Back behind the presser foot
B. Under the feed dogs
C. Around bobbin winder
D. In front of the presser foot

37. What forms a stitch on the sewing machine?
A. Bobbin winder tangles the thread
B. Upper and bobbin threads lock
C. Bobbin thread goes through the needle
D. Single chain stitch from the top thread
ASSESSMENT/EVALUATION QUESTIONS

38. You should backstitch about how many stitches:
   A.* 3-5 stitches
   B. 15-20 stitches
   C. 1-2 stitches
   D. It doesn't really matter

39. Sergers have the capability of going really fast. Therefore you should:
   A. Go slow enough to be in control at all times
   B. Go as fast as the serger will
   C. Go at a steady pace
   D.* Both A and C answers are correct

40. When you have finished serging a seam, you should:
   A. Cut the thread off right by the needle
   B.* Leave a thread tail about 3 to 4 inches long
   C. Leave a thread tail about 10 to 12 inches long

41. On very heavy fabrics, it is best to serge:
   A. Both pieces at once
   B.* One piece at a time
   C. It won't make any difference because the serger is tough

42. As you guide the fabric through the serger with your fingers, it is important not to pull the fabric through or hold the fabric back.
   A.* True
   B. False

43. When you have finished with the serger, you should:
   A. Leave the machine on and clean the serger area
   B.* Turn the serger off and clean the serger area
   C. Turn the serger off and leave your scraps by the machine

44. Sergers are great, but you have to be _______ when using them.
   A. Fast
   B. Mellow
   C.* Cautious
ASSESSMENT/EVALUATION QUESTIONS

5. Thread sewing machine and serger correctly.

1. When turning the hand wheel on your sewing machine, you should always turn it:
   A.* Toward you
   B. Away from you
   C. It doesn't matter

2. When bringing the bobbin thread up, you should hold the top thread and:
   A. Thread the bobbin thread through the hole in the needle plate
   B. Use the power peddle
   C.* Turn the hand wheel one full rotation (needle goes all the way down and then back up), then gently tug on the top thread
   D. Any of the above will work

3. A well-balanced tension produces a stitch that:
   A. Pulls to the back
   B. Is loose on the top for stretch
   C. Has loops on the bottom side
   D.* Appears the same on both sides

4. If stitches are NOT flat on both sides of fabric, or if there are loops on either side, you should check which of the following:
   A. Presser foot
   B. Bobbin
   C. Stitch length
   D.* Tension and threading

5. New serger threads can be tied to the old threads and pulled through without unthreading the machine.
   A.* True
   B. False

6. Threading a serger is __________ than threading a sewing machine.
   A. Easier
   B.* Harder
   C. About the same

7. When tying new threads on the serger, it is best to make:
   A. A large knot so it doesn't come undone
   B.* A very small square knot about three inches from the end
   C. A very small slip knot over the previous thread
ASSESSMENT/EVALUATION QUESTIONS

6. Demonstrate adequate control of sewing machine, serger, and other equipment.
   1. Backstitching at the beginning and ending of your seams will secure them.
      A.* True
      B. False
   2. You should backstitch about 3/4 to 1 inch at the beginning of every seam.
      A. True
      B.* False
   3. To pivot stitch means to leave the needle in the fabric, lift the presser foot, turn the fabric, lower the presser foot, and then continue sewing.
      A.* True
      B. False
   4. You should use the pivoting method when:
      A. Sewing seams
      B. Sewing hems
      C.* Sewing corners

7. Apply proper procedures for cleaning and maintaining sewing equipment.
   1. When replacing a sewing machine needle it is important that the:
      A. Groove side of the needle face the thread
      B. Groove side of the needle face away from the thread
      C. Needle be inserted to the top of the socket
      D.* Both A and C answers are correct
   2. Lint in the machine should be:
      A. Ignored—"it does no harm or no good"
      B. Left to collect oil and help the machine run smoothly
      C.* Removed regularly to prevent build-up
   3. Each school sewing machine should be cleaned thoroughly:
      A. Every day
      B. Once a week
      C.* Once a month
      D. Once a year
ASSESSMENT/EVALUATION QUESTIONS

4. Your machine is making an unusual noise when you are stitching.
   You should:
   A. Check to see that the bobbin is in correctly
   B. Check to see that the needle is all the way in and straight
   C. Check the threading
   D.* All of the above

5. To clean starch or sizing from a noncoated soleplate on an iron, rub the spots with:
   A. #3 steel wool
   B.* Paste made from scouring powder and water
   C. Vinegar

6. If melted plastic or man-made (synthetic) fibers stick to the iron, one should NOT try to remove them by:
   A.* Cooling the iron, rubbing the iron several times over wax paper, and removing any remaining residue with scouring powder.
   B. Heating the iron until the residue softens, scraping it off as much as possible with a thin piece of wool, and then using scouring powder to remove any remaining residue.
   C. Heating the iron until it is slightly warm, rubbing the iron several times over waxed paper sprinkled with salt, and then wiping it off.

7. To avoid mineral build-up, steam irons should be filled with:
   A. Hot water
   B. Tap water
   C.* Distilled water

8. When making machine adjustments, the machine operator should:
   A. Always call the clothing and textiles teacher
   B.* Make only the adjustments for which training has been given
   C. Try to make any adjustments that are needed

9. Whose responsibility is it to see that the sewing machine is kept in good condition?
   A. The shop teacher
   B. The clothing and textiles teacher
   C. The student operators
   D.* Both B and C answers are correct
ASSESSMENT/EVALUATION QUESTIONS

10. Which of the following problems could be fixed by the student operator?
   A. Improper threading
   B. Blunt needle
   C. Needle in backwards
   D.* All of the above

11. Which of these practices might damage or reduce the efficiency of a sewing machine?
   A. Applying a drop of oil at each oiling point
   B.* Leaving thread ends in the machine
   C. Removing the throat plate to clean the underside of the machine

12. When adjusting the upper tension, the presser foot:
   A.* Should be in the down position
   B. Should be in the up position
   C. Can be in either the down or up position