Two Handed Tie

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Equipment for this station:

- String – practice on this – it's a lot cheaper than suture material and you will learn the movements
- Catgut
- A sandbag, hook, tubing – something to ligate

Considerations for this station:

- Do not tie your knot in the middle of a piece of suture
    - You will only get one go at tying a knot
    - It will cost a lot more to your future employer!

Please inform a member of staff if equipment is damaged or about to run out.

1.

We have used different colours to illustrate how to do a two handed tie, in reality this would be each end of the same suture material.

Hold the yellow strand (furthest from you) with your middle and ring fingers of your left hand. Hold the red strand (closest to you) in your right hand.
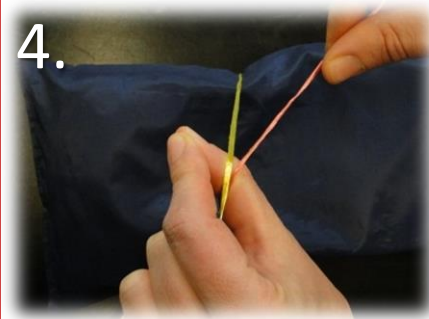
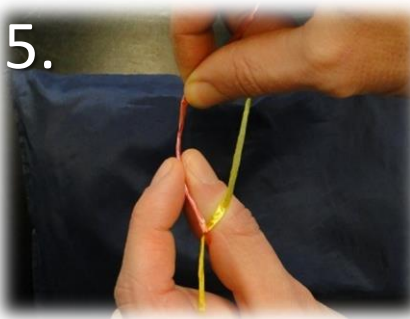Place your left index finger under the yellow strand.

2.

Bring your right hand (red strand) over your left index finger, so that the red strand crosses the yellow strand.
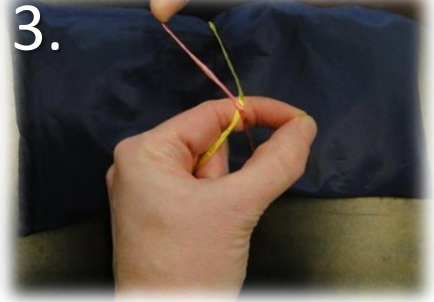
3.

Pinch your left index finger and thumb together.

4.

Keeping your thumb and finger pinched, rotate your left hand so that your **thumb** moves under the crossed strands.

5.

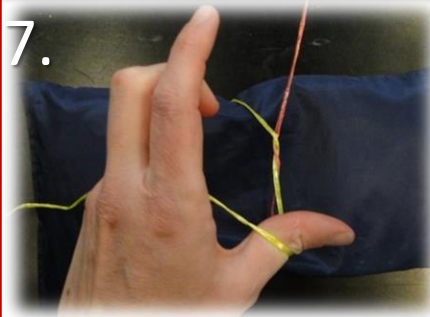Using your right hand, place the red strand in between your left thumb and index finger.

6.

Rotate your left hand back to its position in 3., but still holding the red strand with your left hand.

Let go of the red strand with your right hand.

Pull the red loop through and pull both ends (red away from you, yellow towards). This is your first throw.
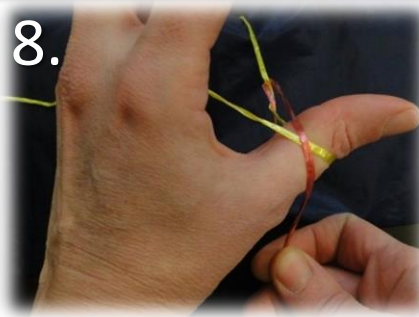
7.

Your left hand should still be holding the yellow strand.

Hold it with your ring and little fingers, and loop it round your thumb. The loop should be formed so that from your 1st throw, the yellow thread goes under and then around your thumb, as in the picture.
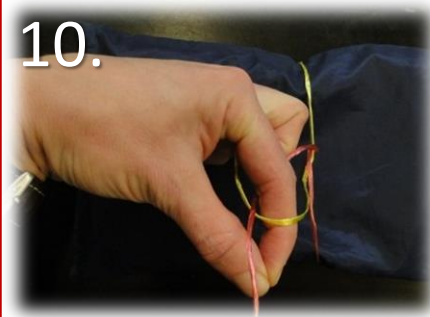
Hold the red strand to the top.

8.

Bring your right hand (red strand) down over your thumb, so that the red strand crosses the yellow strand.

9.

Pinch your left index finger and thumb together.

10.

Keeping your thumb and finger pinched, rotate your left hand so that your **finger** moves under the crossed strands.
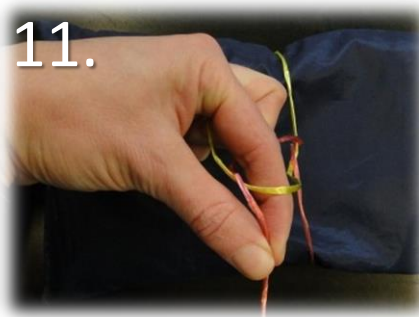
11.

Using your right hand, place the red strand in between your left thumb and index finger.
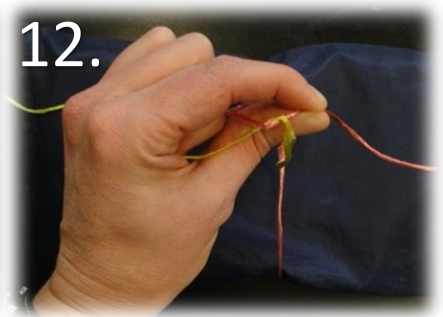
12.

Rotate your left hand back to its position in 9., but still holding the red strand.

Pull both ends; yellow away from you, red towards. This is your second throw.

13.
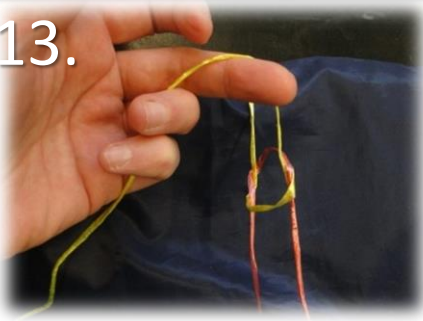
You will have a square knot. Tighten it by pulling both strands evenly.

1. Cut off (or untie if re-using material) all your knots
2. Put unusable material in the bin
3. Put useful lengths beside the station or on the trays provided
4. Place any instruments on the tray
5. Leave the station tidy and ready for the next person

Station ready for the next person:

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Different surgeons have different preferences for the knots they use in different circumstances. Below are two approaches.

Square knot:
1st throw = single wrap/loop
2nd throw = single wrap/loop
(1+1)
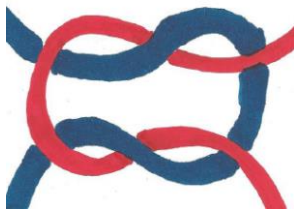
Surgeon's knot:
Surgeon's throw = double wrap/loop
2nd throw = single wrap/loop
(2+1)

The double wrap of the first throw gives extra friction which is useful when working with slippery suture material.
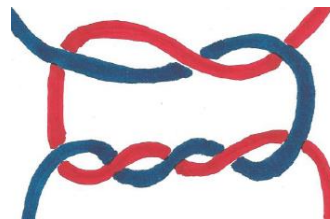
Total numbers of throws (T) (Numbers of loops per throw)		Square Knot (2T) (1+1 = 2L)	Surgeon's Knot (2T) (2+1 = 3L)
Simple Interrupted pattern		3T (1+1+1=3L)	4T (2+1+1+1=5L)
Simple continuous pattern (subcutaneous or linea alba)	Start	4T (1+1+1+1=4L)	5T (2+1+1+1+1=6L)
	End (1 more throw than starting knot)	5T (1+1+1+1+1=5L)	6T (2+1+1+1+1+1=7L)

Instrument ties
Square Knot and Surgeon's Knot

Definitions

There are many different words you will need to be familiar with when discussing suture, suturing and surgical knots. Sometimes people in practice use the terms throws / loops / wraps to all mean the same thing which can be confusing. We have defined how **we** will use these terms when teaching you how to place secure surgical knots:

- **Suture material** = surgical thread used to create surgical sutures and/or ligatures.
    - (e.g. Nylon)

- **Suture pattern** = the pattern used to close tissues during surgery
    - (e.g. simple interrupted, simple continuous, cruciate and intradermal)

- **A Throw =** Square/surgeon's knots are made up of first and second throws with extra throws on top to secure the preliminary knot. Each throw may have one or more loops/wraps around the needle holder. Throws usually go in opposite directions to each other.

- **A Surgical knot** = a combination of throws of surgical suture used to create a knot that is secure and unlikely to undo.

N.B. Loops / wraps are all used typically to mean the same thing, but it is best to think of throws in terms of the direction you are taking the suture.

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