2.3 Front crawl

At the end of this section you should have a clear understanding of:

What to teach in front crawl

- The technique of the stroke
- The common faults in the front crawl stroke
- The corrections for the main faults in front crawl stroke

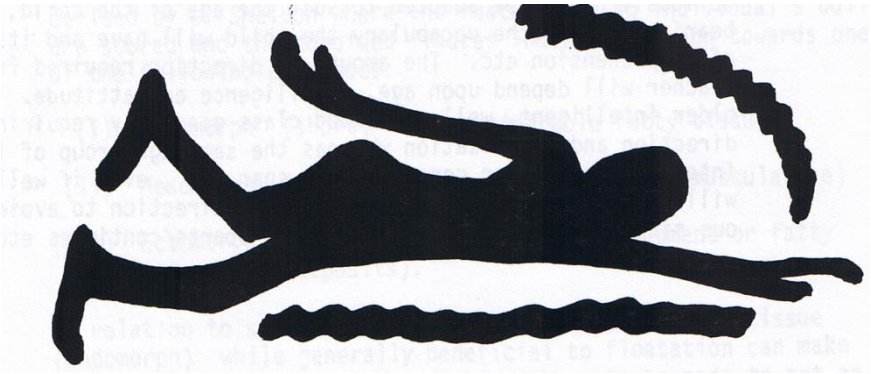
How to teach the front crawl stroke

- Suitable activities to introduce and develop the front crawl stroke related to pupil ability
- The sequencing of practices to introduce and develop the front crawl stroke
- The technique of the front crawl stroke to inform explanations and demonstrations of the stroke and provide teaching points for the practices

To this has to be added all the knowledge about **how to teach** in general i.e. in relation to communication, organisation etc.

Historic Development

The development of all the swimming strokes over the years has resulted mainly from the continuous attempt to swim faster.



An Egyptian Hieroglyph described by Carl Diem, a German archaeologist, is dated at 2500 BC. This shows a version of swimming not dissimilar to the front crawl stroke although this is many centuries before the evolution of the sport of swimming, with its four competitive strokes, as we know it today.

Early texts from the seventeen, eighteenth and nineteenth centuries refer to the 'animal stroke' which has similarities to 'dog paddle'. The front crawl in Britain evolved predominantly from the breaststroke in the 1820-1830s, the later development of the side stroke in the 1840s and then the subsequent development of an over arm version of it. Later refinements incorporated versions that came from Australia and South Africa. The stroke gradually developed a flutter kick and became known as the Australian crawl or Australian splash. In the following years there have been further variations relating to the angle of the body and the number and rhythm of kicks. There have also been significant variations in arm action from the 'overtake' stroke, used in the 1930s with the long slide entry to the high turnover stroke used in the 1960s by Michael Wenden and then the longer powerful stroke of Iain Thorpe and of Michael Phelps at the start of the twenty-first century.

2.3.1 Stroke Technique

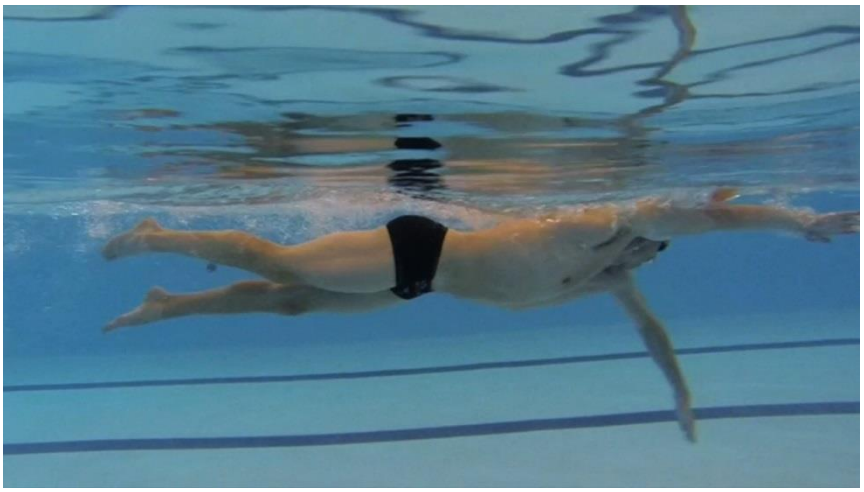
Front crawl is the fastest stroke because it is mechanically the most efficient, i.e. it comes nearest to obeying all the fundamental principles (see notes on propulsion/ resistance, etc.)

Body Position

Main points:

- Flat and streamlined
    - Head in line with body
    - Face in the water
    - Eyes looking forward and down
- Narrow / tapered in shape
    - Tapered front and back
- Rolling round the long axis of the body

The body is ***flat/ streamlined*** but with the legs low enough to allow the leg kick to take place in the water, i.e., it is essentially horizontal but with a very slight slope from head to feet to allow the feet to kick in the water.



The **push and glide position** is the basis of the front crawl. The narrow pointed front end and tapered pointed tail end allow a smooth flow of water on and off the body to a greater extent than in the other strokes. The tapered shape of a fish or a seal, the lengths that designers go to in order to produce boats and aircraft that are sleek and streamlined, in order to be fast, sets the idea and the standard for the shape of the body to move easily though the water. The fact that the head remains low and is not raised to breathe helps to keep the frontal resistance, (or the size of the body area presented to the water in the direction of travel), to a minimum. Minimising the size of the area presented and ensuring that the shape is as tapered as possible minimises the resistance that the body creates.

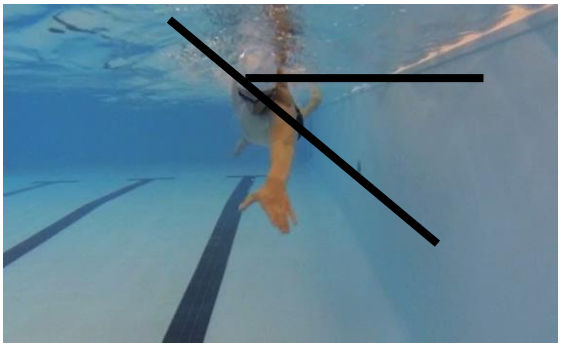
This allows the body to travel through the water with the greatest of ease and the minimum of effort. This means that propulsive efforts can be used most effectively to propel the body rather than being used overcoming unnecessary resistance. For example if the head is raised the legs and feet sink, the body is at an angle in the water presenting a large and un-streamlined shape which is much more difficult to move through the water.

The head position should be adjusted depending on the individual's buoyancy. Usually the ***water level will be around the forehead***, between the eyebrows and the hairline. The ***eyes look forwards and down*****.** In swimmers with poor buoyancy, whose legs and feet tend to sink, the head sometimes requires to be a little lower in the water to help raise the legs. For swimmers with excess buoyancy, whose legs and feet tend to float right at or just breaking the water surface, the head sometimes needs to be raised a little higher in order to lower the legs in the water for an effective kick. **The body reacts like a seesaw in the water – raise the head and the feet sink … lower the head and the feet rise.**

Adjust the head position to get the body flat with the legs kicking in the water

During the stroke the body will ***roll round the long axis*** of the body as it leans into the propulsive phase of the arm action (the underwater pull phase). The roll is normally around 45 degrees. As the left arm is in the main underwater pulling phase the body rolls towards that arm. This not only allows the swimmer to lean into and thus add power to the arm pull it also, in releasing the other shoulder/ arm from the water, eases the over water recovery phase and assists the turn of the head for breathing. This is particularly important in swimmers with poor shoulder mobility who may roll around 70 degrees. To see / understand the roll:-

- visualise the horizontal water surface as a line
- visualise a line between the right and left shoulder
- the angle between the lines is the amount of roll (in this case about 45 degrees, although it can be more – up to 90°) i.e. the body rolls towards the arm that is pulling.
- Envisage the same thing for the pictures below



Leg Action

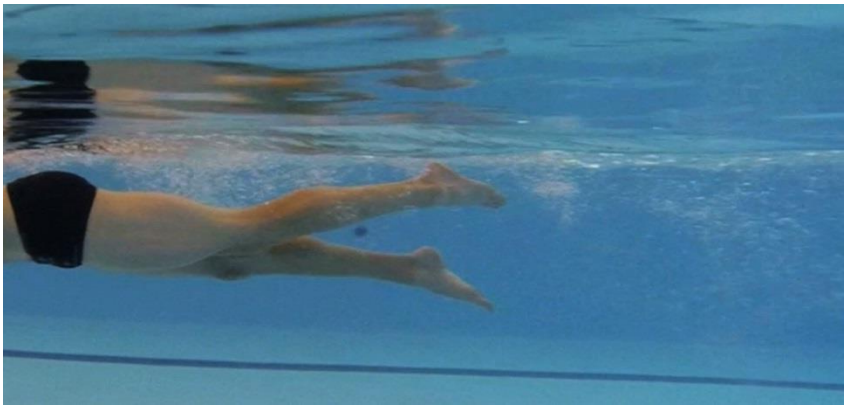
The **functions** of the leg action are:

i) To maintain the flat body position
ii) To balance alternate arm action
iii) Some propulsion (minimal).

Main points

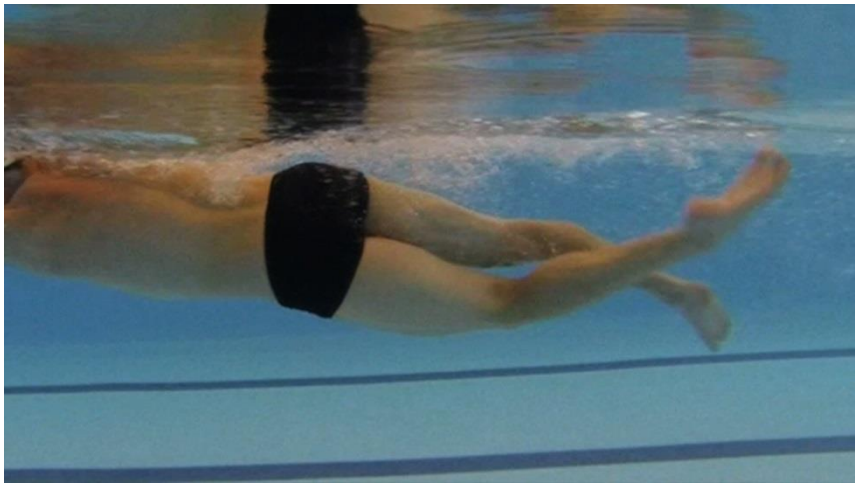
- Alternating up/ down action
- Legs pass close to each other keeping the body narrow
- Kick between the surface and 12 – 18" deep (30 – 45 cms.) – feet should make the water 'bubble' or 'boil'
- Kick with the toes 'pointed' / ankle in the plantar flexed position / in-toeing

The kick is an ***alternating up/down action*** of the legs which takes place with ***the legs passing close to each other*** and moving ***between the water surface at a depth of 12-18 inches / 30-45 cms***. The shallower depth would be suitable for children and the deeper one for adults who have larger bodies / longer legs. The narrow width (legs passing close to each other) and limited depth of the kick is important in minimising the resistance created.

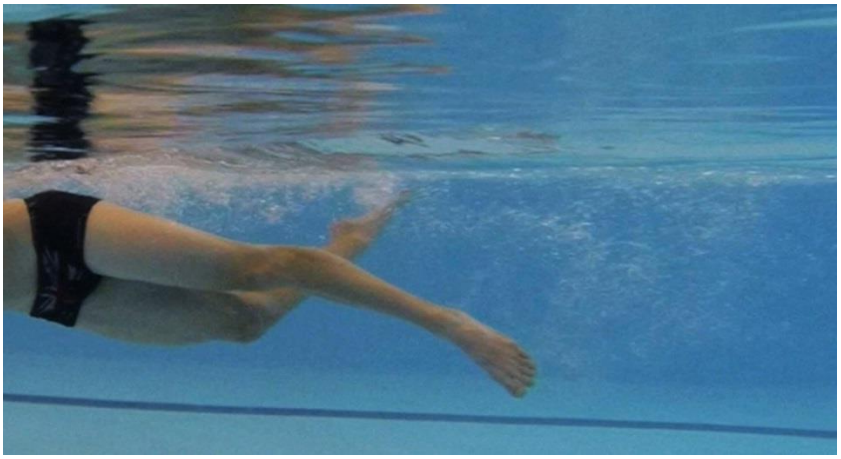


In the kick ankle flexibility is very important. Good flexibility enables the swimmer to get the foot into the most advantageous ***'pointed toe' position*** (plantar flexed) to gain propulsion and also helps to maintain the pointed streamlined position at the tail end of the body. This results not only in a more effective kick but also maintains the streamlined tapered position that creates the minimum resistance. The legs should be straight in line behind the body without any swinging from side to side in reaction to the arm action.

Upbeat - The leg is kept essentially straight for most of the ***'up beat'***, bending slightly right at the top of the upbeat so that the foot just disturbs the water surface.



Downbeat - The leg then straightens vigorously on the ***'down beat'***. As the leg straightens on the down beat the ankle is in extreme plantar flexion putting the foot into the pointed toe position. The greater the plantar flexion the more efficient the kick will be. The toes are also turned in (in-toeing).



Note the roll of the body in the leg kick pictures i.e. from the side view you see not just the side of the body but also the back of the hips and the front of the hips at different times in the kicking sequence. The body roll round the longitudinal axis of the body goes right through the body from shoulders to legs.

There are variations to the rhythm of the kick with the 6 beat and 2 beat kicks being the most common and used by sprinters and distance swimmers respectively.

Task: Next time you are at the pool look at swimmers swimming straight towards you - are their legs in line behind the body or do they swing from side to side? (this is normally a reaction to a wide swinging arm action or to a hand entry that has gone across the midline of the body)

Task: Next time you are at the pool look at front crawl swimmers. They do not need to be very able swimmers. The exercise is about training your observation.

Stand where you can see the swimmer coming towards you / going away from you / swimming past you showing their side view. Look at the following things:

- Are the feet churning the water at the surface continuously or are they well below the surface?
- Are the feet going up and down passing very close to each other?
- Are the ankles stretched and the toes in the pointed position? Look again, are the ankles stretched / toes pointed right through the kick (particularly at the lowest point of the kick – that is where, if the foot moves to the 'flat footed' position, it effectively puts the brakes on and slows the swimmer down)?
- Look at the body roll. Do the shoulders roll? Do the hips roll? Do the legs roll i.e. does the kick roll?

Do this exercise with several different swimmers over a period of time. This is a really important exercise to improve your observation.

Arm Action

The ***arms are the main propulsive element*** of the stroke. The arm action can be looked at as having four phases: the **entry**, the **catch**, the **propulsive phase** and the **recovery phase.**

The aim of the arm action is the application of the maximum force possible to send the body forward. This force requires to be applied continuously (right arm, left, right, left etc.) in order that the propulsion is smooth and constant, avoiding the mechanical disadvantages of starting and stopping.

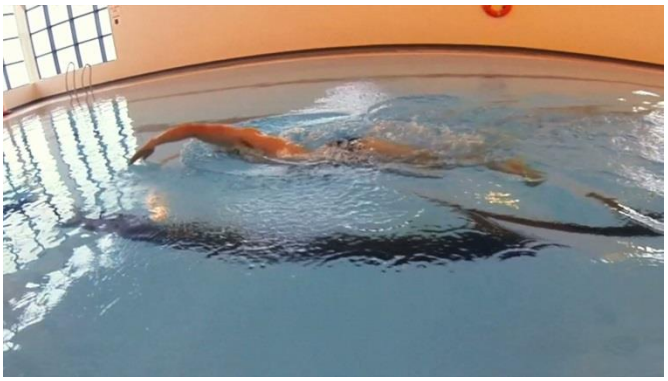
Main points

- **Entry** of the hand into the water should be in front of the shoulder i.e. between the line of the ear and the shoulder width
- Hand should enter with the thumb / fingertips first, palm facing diagonally out
- At the entry the **elbow should be higher** than the hand and the wrist
- Following the entry the hand the hand sculls down and slightly outwards to the **'catch' position**
- The arm **propulsion** sends the body forwards by **sweeping down, in and up <u>as it moves backward</u>** in relation to the body
- The propulsion finishes as the hand pushes back and up towards the thigh
- The arm **recovery** carries the arm over the water to start again
- The **elbow should be bent** and higher than the wrist / hand in the recovery

Entry

The hand enters the water at a mechanically efficient position to minimise downward pressure. Downward pressure would result in upward movement (see section 2.1 on basic mechanics / propulsion). The ***elbow should be high*** with a slope down from the elbow to the wrist and hand.

Entry



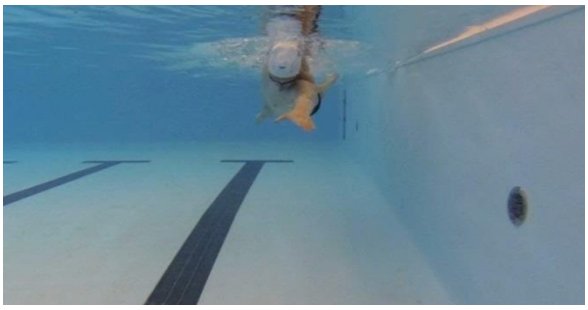
The ***thumb/fingertips enter first***, sliding into the water, followed by the rest of the arm. The hand should ideally be ***turned with the palm facing slightly / diagonally outwards*** at an angle of approximately 45^0 to the water to avoid trapping air bubbles as it moves under water.

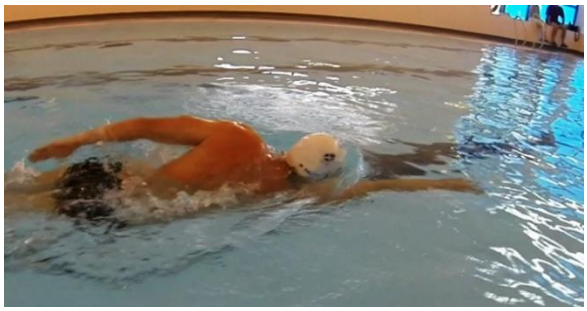
Entry should be between the ear and the shoulder line usually in front of the ear on its own side of the body.

Catch

The hand sculls out and down to reach the ***'catch' position*** some 6 inches / 15 cms below the surface, at the same time rotating the arm/hand so that the backward pull can commence.

'Catch'





Task: Stand in front of a mirror and look at yourself performing the arm action / hand entry. Alternatively work with a partner and look at each other.

- Make sure the elbow is higher than the wrist and the wrist is higher than the hand on entry. Make sure the hand is turned with the thumb / fingertip of the first finger entering the water first.
- Move through the sequence of sculling out and down towards / reaching the catch point – stretching the arm out and turning the hand ready to pull. Relate this movement to the reverse lobster scull (see sculling in Core Aquatic Skills, Cp.2.2)

Propulsion

The propulsion of the arm can be broken down into a ***series of sweeps*** with the total pathway being a curved shape. In some terminology the arm propulsion is described as 'pull and push phases'. The part of the propulsion in front of the shoulder line feels like a pull i.e. pulling on the water to bring the body forward over the hand. The second part, from the shoulder line backwards towards the hip, feels more like a push as the swimmer pushes against the water to move the body forwards past the hand.

The ***Sweeps*** of the propulsive phase.

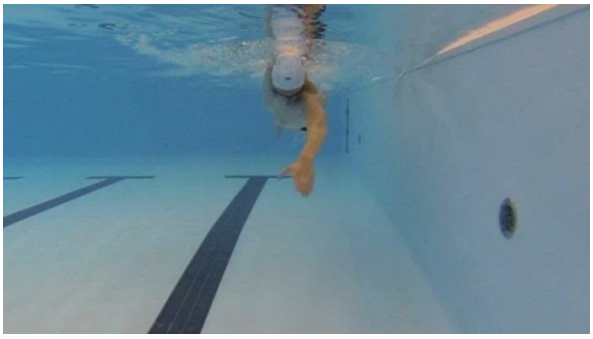
The underwater phase or propulsive phase is comprised of three sweeps: the ***downsweep***, the ***insweep*** and the ***upsweep***. Each sweep also travels backwards. Remember that applying force backwards sends the body forwards –applying force down / in / up will only send the body up / out / down. (See section 2.1 on Propulsion) The arm accelerates throughout the propulsive phase.

'Downsweep – Insweep - Upsweep'

+ sweeping backwards in all sweeps

Downsweep

From the catch position where the swimmer feels that they are able to start applying force with the elbow and wrist high and the palm of the hand facing <u>down and back</u> the downsweep starts.

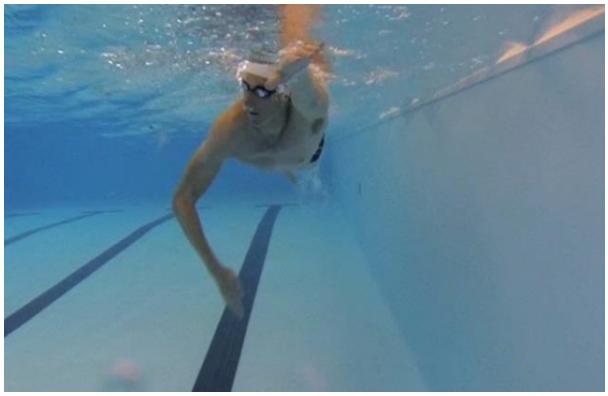


From there the hand continues to ***sweep down*** **and back** with the ***elbow held high*** and <u>beginning</u> to bend.

Insweep

As the hand reaches its lowest point / the end of the downsweep the ***palm faces backward and sweeps inward as it accelerates towards the centre line*** of the body. During this sweep the elbow continues to bend until it is at approximately 90 degrees. This places the hand below the chest area. This allows the muscles of the shoulder and elbow (as the elbow bends) to contribute power to the propulsion.

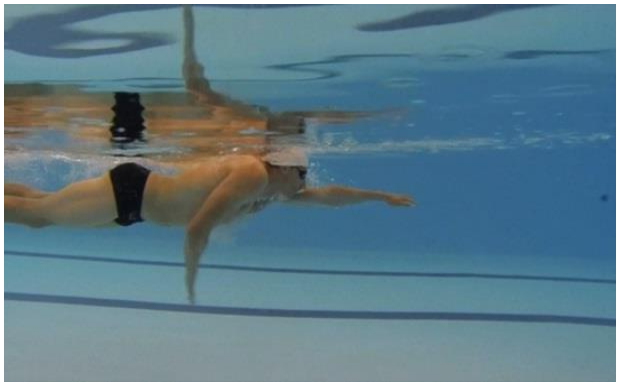


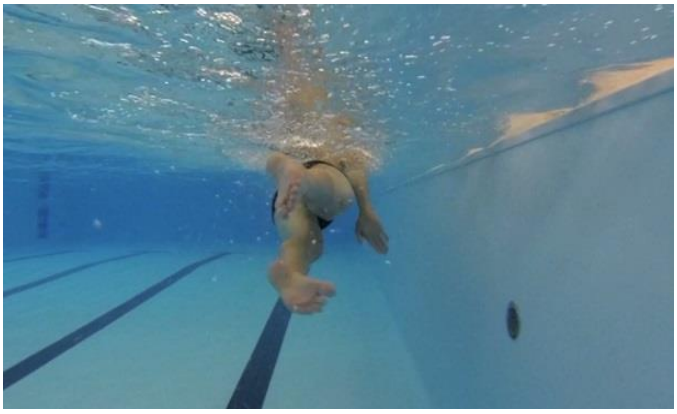



Note the approximately 90° angle of the elbow, the hand below the chest area and the 'high' elbow position. Note also how you need to see both the 'side on' and the 'head first' views to see these elements clearly.

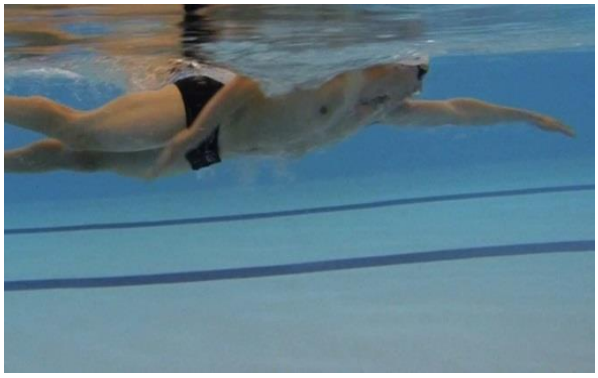
Upsweep

The palm of the hand, with the fingers pointing downwards, faces backward for its sweep upwards past the hip towards the thigh. The ***hand sweeps back, up and towards the thigh***. The elbow straightens as the hand pushes back to the thigh. This allows the muscles of the shoulder and elbow and wrist (as the elbow straightens and the hand pushes past the thigh) to contribute power to the propulsion.



As the hand passes the thigh it turns so that the palm faces inwards towards the thigh and the hand can then exit the water with the little finger edge leading.



..... catch
..... downsweep
..... insweep
..... upsweep
..... all while the arm travels backwards

Recovery

The exit from the water takes place as the elbow 'lifts' out of the water first, leading the arm into the recovery. The hand exits the water little finger edge leading. The body rolling towards the pulling arm helps to release the recovery shoulder and arm into its over-water recovery movement***. The elbow should be bent and held high*** throughout the recovery with the ***fingers just clear of the water*** surface. The elbow should be bent during the recovery keeping the arm 'short' and close to the body. A wide lateral swing would cause an undesirable sideways reaction in the tail end of the body which would cause unnecessary resistance.

'High bent elbow recovery'

If the arm is straight and swings wide to the side as it recovers it causes the tail end of the body to react by swinging from side to side as well. This effectively makes the body 'wider' which is undesirable as it causes more resistance. The arm should be ***relaxed*** during the recovery movement. The arm then extends forward towards the entry point.

Task: Stand in front of a mirror and look at yourself performing the arm action concentrating firstly on the propulsive phase and then on the recovery phase. Look at yourself or work with a partner. Look at this from the front and also from the side. **THIS IS A VERY IMPORTANT TASK BOTH FOR FIXING TECHNIQUE KNOWLEDGE IN YOUR MIND AND ALSO IN RELATION TO YOU PERFORMING DEMONSTRATIONS TO YOUR PUPILS ON THE POOLSIDE.**

- Go through the entry, catch, downsweep, insweep and upsweep. Check the following points
  - Show the hand entry position … is your elbow high than the wrist … is your wrist higher than the hand?
  - Scull down and out to the catch position (Reverse lobster scull / refer to sculling in Cp. 2.2) …. did you change the pitch of the hand to face down and back … is the elbow / wrist still 'high'?
  - From the 'catch' continue the downsweep – it sweeps down and back…. what way is the palm of the hand facing ….. is the elbow high?
  - As the hand starts the insweep ….. the palm of the hand faces back … the hand should come 'in' until it is under the mid line of the body and the elbow is bent to 90˚ (relate to the canoe scull position / refer to sculling in Cp. 2.2) …… keep the hand accelerating i.e. getting faster as it goes through the pull
  - Show the upsweep …. check that the hand faces back as the hand sweeps up towards the hip. As the hand passes the hip the palm turns in so the hand can 'slip' sideways / little finger first out of the water.
- Perform the arm recovery through to the hand entry. Make sure the elbow is high and bent. Make sure the hand is lower than the elbow all the time.

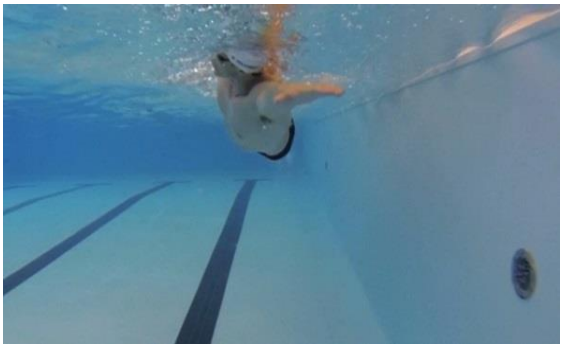
Breathing

Main points

- Turn the head to breath / do not lift it
- The side of the face / one ear and eye remains in the water when the head turns
- Breath in when the mouth is clear of the water
- Return the face to the central position in the water as soon as the inhalation is completed
- Breath out into the water

The breathing must not interfere with the propulsion of the stroke or cause increased resistance, i.e. it must be taken by ***turning the head to the side without lifting it.*** Lifting the head would alter the body position (the feet would drop lower in the water) and increase resistance. The turning of the head must be fitted into the arm action without disturbing it.

The breath is taken by turning the head to the side when the arm on that side is pushing through to the thigh / going into the recovery phase. The head should be turned so that the ***mouth is clear of the water*** but the ***side of the head remains in the water***.



The swimmer can use trickle breathing or explosive breathing. ***Trickle breathing*** is where the ***breath is exhaled gradually into the water*** through the nose and mouth while the face is in the water and the arm on the breathing side is in its propulsive phase. The head is turned as the arm goes into the recovery phase and the inhalation takes place. The alternative form of breathing is ***explosive breathing.*** Here the breath is held during the propulsive phase of the arm action and is then ***exhaled, hard and fast, just as the head turns*** in preparation for breathing as the arm goes into the recovery phase. The inhalation is taken straight after the forceful exhalation.

Task: In front of a mirror demonstrate the breathing. Check your demonstration.

- Turn the head (do not lift it) as the arm that side is finishing its pull / about to reach the hip and lift into the recovery.
- Breathe in and then turn the head back to the central position. It must be back before the recovering arm is ready to enter the water.

Do the same thing commenting (as for a demonstration to pupils), as you go through the movements. Can you cut your explanation/description down to 4 KEY points / 4 short phrases?

The breathing pattern can be ***unilateral***, i.e., to the same side each time / every 2 (or 4 or 6) arm pulls or ***bilateral***, i.e., alternately to the right and left sides every 3 (or 5 or 7) arm pulls.

Timing

The 6 Beat Kick

This is mainly used by sprinters and is the kick usually aimed for in teaching the stroke. Each leg does 3 kicks during one arm cycle, i.e., a right arm pull and left arm pull makes one arm cycle. The general appearance is of a ***continuous kick*** that just churns up the water surface very slightly.

The 2 Beat Kick

This type of kick is mainly used by distance swimmers. There are two main variations of this kick, the straight 2 beat kick and the crossover 2 beat kick. There are 2 kicks, one from each leg for a complete cycle of the arms.

In the straight 2 beat kick there is a pause in the kicking sequence when the legs are at their maximum spread, one-up and on-down. The leg kicks as the arm on that side finishes its pull.

In the 2 beat cross-over kick there is a slight pause in the kicking sequence when the legs are crossed one on top of the other. The timing of the downbeat of the kick again fits in with the finish of the arm pull on that side. Cross over variations are normally personal balancing adjustments related to arm movements and evolved by individual swimmers. 6 leg kicks to one cycle of the arms (sprint) or 2 leg kicks to one cycle of the arms (distance) are the most common form of timing with breathing being done either (uni)laterally or bilaterally. The frequency of breathing normally depends on the demands of the distance / speed being swum.

Check your understanding and knowledge

Now that you have read about the stroke you need to check up on your knowledge. If you have done the tasks that will help you to both understand and remember. If you have not yet done the tasks you would be better to do them first and then attempt the written questions.

Question 1: List the main points of technique for the following parts of the frontcrawl stroke.

Body position

Give the main points related to good body position for front crawl

a)_____

b)_____

c) _____

Leg action

Give three points relating to the foot position and leg action for the front crawl

a)_____

b)_____

c) _____

Arm action

Give four points that relate to the front crawl arm action – give one point for each area identified below.

a) entry _____

b) catch_____

c) sweeps _____

d) recovery _____

Breathing

Give 3 points of breathing technique for front crawl

a)_____

b)_____

c) _____

Timing

a) How many leg kick per arm cycle are there for most sprinters?_____

b) Explain bi-lateral breathing (timing in relation to arms)?_____

_____

c) Explain the timing of the breathing with the arm action _____

_____

2.3.2 Practices for teaching the stroke

The series of practices listed below covers all levels of ability from the beginner to the able swimmer, all of whom need to learn or practice technique, develop co-ordination and strengthen aspects of their stroke. Practices must be selected to suit the ability of the individual or group and relate to the aim and objectives of the lesson. Use of a more extensive range of practices

- adds interest to sessions
- presents things from a range of perspectives that suit different learners
- helps to avoid boredom

You will not manage to learn or remember all these practices at once but should use the text as a resource to find more practices, to meet different needs, over time.

The following categorisation of ability levels is to serve as a guide to teachers in the broad selection of practices in the early stages of teaching. The following are suggestions about the main areas that pupils in these ability categories are likely to need to learn and practices that they are likely to be able to cope with.

Beginners/Early Improvers

Pupils should have done some work in the prone / front lying body position and some alternate kicking as part of propulsion within Core Aquatic Skills, before starting to learn the techniques of the strokes as part of SwimSkills. Beginners should be working on basic body position practices, e.g., push and glide, plus leg kick practices. Some basic arm technique can be done as part of the whole stroke (i.e. pupils at this level are not ready to do arms only).

Beginners in front crawl need

.....

body position and leg kick practices

- **For beginners at front crawl**
  - Practices of submerging to enable them to swim with the face in the water
  - Breath control / breathing practices
  - Practices of the prone body position and streamlined shape e.g. floating
  - Push and glide
  - Practices for kicking
  - Gliding and kicking
  - Practice of full stroke concentrating on the body position and leg kick

Intermediate Stage

Intermediate swimmers should be doing further work on body position and leg kick practices. They should also be doing arm technique practices, some as arms only or arm drills but mainly over short distances as part of the whole stroke (with emphasis on the arm action).

After a basic arm action has been established breathing is the important aspect to introduce at this stage. Until pupils can master the breathing they cannot swim far without lifting the head. This destroys the body position element of the stroke which is essential for the effective use of the legs and the correct application force in the arm action. There is no point having pupils swimming distances of the stroke, even single lengths, when they cannot perform the breathing. All they do is swim incorrectly and thus spend their time practicing the wrong thing. Widths and lengths of incorrect technique just make pupils ***more practiced at swimming badly / incorrectly***. The stroke without the correct breathing is also very tiring and makes pupils unnecessarily exhausted, which is de-motivating. Breathing is the fundamental which will enable them to develop the stroke further, increase their stamina and enable them to continue to work over the greater distances. In other words they require to master the basics of the body position and leg action, then add a basic arm

action and then learn the breathing – once they have mastered the breathing they will be able to practice more and gradually increase the distance swum in order to become skilled performers.

'Practice makes perfect' - but only if you are practicing the correct thing !
'Practice also makes permanent' - and that also applies if you are doing the incorrect technique !

- **For intermediate swimmers**
  - Reinforcement of the stages above related to body position and leg action
  - Practice of basic arm action
  - Practice of the full stroke with concentration on arm action
  - Practices for breathing
  - Practice of the full stroke with the concentration on breathing

Improvers need ..... more body position and leg kick practices ..... plus some arm action practices and breathing practice ..... this is the key technical learning phase

The Able Swimmer/Very Able Swimmer

Able swimmers who have mastered the breathing in the front crawl and are capable of swimming lengths should be aiming to refine and strengthen the stroke further. Stroke drills for arms and legs to improve technique and strengthen the stroke are appropriate for able swimmers as are practices for variations in breathing, such as bi-lateral breathing. Practice of the starts and turns associated with each stroke, e.g. widths including turns, are a suitable development for the able swimmers as are full stroke /arm /leg practices over increasing distances.

- **For able swimmers**
  - Reinforcement of the stages above on body position, leg action, arm action and breathing
  - Practice of leg kick with greater emphasis on strengthening practices
  - Practice of arm action with greater attention to the finer detail, such as the precision of the entry etc.
  - Practice of breathing with emphasis on bi-lateral breathing
  - Practice over increasing distance
  - Practice with starts and turns

Advanced swimmers - refine and extend .... precision of detail, extend the skills, strengthen the physical development

The practices (i.e. what to do) that follow are listed with some brief comments indicating their main use and important points in execution of the drill etc. (i.e. how to do the practice). Information is then given regarding the teaching of it (i.e. how to teach it) to help the inexperienced teacher with aspects such as issues to look out for in organising the practice, use of the equipment involved in the practice and what sort of feedback pupils might need to help them develop their skill. Teaching points should be selected from your knowledge of stroke technique and appropriate to the level of ability of the pupils.

Practices for Front crawl

Body Position Practices

The body must have the head / face in the water to get the flat streamlined position necessary for the stroke. It would be hoped that learners had mastered submerging and prone floating through work on core aquatic skills before starting on front crawl. However as some may not have, some submerging practices and aquatic breathing practices (Practices 1 – 9) are therefore included in this section in case they are needed. There are further practices for submerging and aquatic breathing in Section 2.2 of this chapter / Core Aquatic Skills.

PRACTICE (what to do)	USE (when / why to do it)	COMMENTS (+teaching points)
1. **Face in the water practices** (breath-holding) Dipping the face in then progressing to submerging the whole head e.g. touching the bottom, picking up objects, etc.	For beginners/improvers who do not put the face in the water. If not willing pupils may need to go back to washing the face with handfuls of water, pouring containers of water over themselves. This is to develop the ability to put the face in the water without which they will	Pupils must be confident at this stage before they will ever swim front crawl correctly. No holding noses or wiping faces. It is worth spending time achieving this stage until it is done with ease / comfortably.

	never swim front crawl	
2. Mouth at the surface / chin in the water a) blowing ripples along the surface b) blowing an egg flip along the surface.	For beginners/improvers who still require to master aquatic breathing	Blowing along the surface. Long steady blow of air to cause ripples on the surface. Then blowing along the surface to make the 'egg flip' flip over.
3. **Mouth in / under the water** blowing bubbles.	For beginners/improvers who still require to master aquatic breathing	See, hear and feel the bubbles. Long steady blow. Maximum amount of bubbles from the mouth.
4. **Face in the water looking down and blowing** practices, blowing bubbles.	Combining mouth in / blowing bubbles and eyes in the water.	Long steady blow for trickle breathing. Short intense blow for explosive breathing.
5. **Head completely submerged**, e.g. sitting on the bottom blowing bubbles, or picking up objects from the bottom.	Combining blowing bubbles and moving. Part of the sequence of activity to establish comfort with submerging / exhaling / surfacing / inhaling i.e. really moving air in / out.	Focus on being at ease doing the breathing in / out.
6. **Bobbing – repetitive** submerging and surfacing to inhale. Repeat x 10 + / 30-40 seconds.	For beginners/improvers who still require to master aquatic breathing. The important thing is to get the long spells of repetition that shows they really are breathing.	Submerging the head blowing bubbles / resurfacing to inhale. No pauses / no rubbing eyes etc.
7. Holding rail to get long stretched body position / face in the water.	Only used for a short time, convenient as the swimmer is close to the teacher for feedback.	Reinforcing the stretched shape.
8. Prone floating with the arms by the side, face in the water trying to achieve the flat body position.	To achieve the horizontal floating position	Adjust the head position to get the body position flat.
9. Prone floating - prone in an extended position with the face in the water.	Body shape / feeling of extended position/face in water.	Adjust head position to get body flat if necessary. Establish control of limbs, hands together/feet together. Stretched position, firm

		abdominal and buttock muscles.
10. Push and glide off the bottom to float in pencil float at surface	Usually done at an early stage and usually towards the side for the weak performers.	Push off into the streamlined shape. Head down, hands together, feet together.
11. **Push off from the side**, glide with the face in the water, body extended (arms out in front) at the surface.	Body position and streamlining.	Some will need help with getting the push off from the wall e.g. position feet on the wall / breathe in / put face under the water / push off. Correct body shape/head position.
12. **Push off from the side** but under water.	To establish control of depth at push off and body position.	Many will need help with directing the body down, sinking the head/trunk before the push off. Start with one hand holding wall.
13. **Push and Glide for distance**, aiming for a really dynamic push off and distance covered off the wall due to body alignment.	Use as a lead into front crawl or for practice related to starting / turning.	Force of the push off, body tension in the glide, upper arms pressed against the ears, hands one on top of the other, feet together and pointed. i.e. effort and streamlined shape.
14. **Push and glide submerged / travelling downwards** to pass through a hoop / partner's feet	Using either a hoop just submerged (possibly held by a partner) or sunken to the bottom (vertical) or through a partners feet.	Inhaling and submerging head and shoulders low / underwater before push off from the wall.
15. **Push and Glide as above plus kick as in 13 and 14.**	As a lead into front crawl, full stroke or in relation to start / turns.	Dynamic nature of both the push off and body position/ tension in the glide. Glide and then start the vigorous kick before the glide slows down.

Leg Kick Practices

PRACTICE (what to do)	USE (when / why to do it)	COMMENTS (+ teaching points)
1**. Kicking practice - sitting** on the side with the legs extended, getting the foot position, kicking	Foot position and the continuous nature of action. Only done very briefly for very early stage learners. Useful to have pupils at	Only for the very new / weak swimmer. Get pointed toe foot position correct, first watching

up and down	the side where you can talk to them / correct them.	feet then not watching.
2**. Kicking practice - sitting on the side dangling feet in water** kick/splash	Foot position and the continuous nature of action. Only done very briefly for very early stage learners. Useful as the pupil is close for feedback / correction. Useful to have pupils at the side where you can talk to them / correct them.	Only for the very new / weak swimmer. Get pointed toe foot position correct, first watching feet then not watching feet. Continuous churning of the water rather than intermittent splashes. Avoid too much knee bend i.e. legs should be stretched out with feet just in the water.
3. **Kicking at the rail/ wall**.	On front - Extended leg position/ continuous nature of kick. Only done very briefly. Useful as the pupil is close to you for feedback / correction.	Grasp overhand on rail with one hand and underhand on the wall with the other to get good body position. Teaching points should relate to foot position, legs passing close together, continuous kicking.
4. **On the front with 2 floats,** one under each arm. Kicking.	For non-swimmers/ beginners who need confidence while learning to kick. The wider base of 2 floats is helpful for pupils who find balance difficult or who need the security of greater buoyancy.	If they have difficulty with 2 floats - check they are holding them and not just laying their hands on them. Teaching points related to foot position, legs passing close together, continuous kicking.
5. **On the front kicking, with a noodle** across the chest and under the arms.	For non-swimmers/ beginners who need confidence while learning to kick. The wider base of the long noodle is helpful for pupils who find balance difficult.	Teaching points related to foot position, legs passing close together, continuous kicking.
6. **On the back with 2 floats**	For those with difficulty kicking. They can find it easier to get the movement when the feet break the surface at the end of the upbeat (leg extension), as the water pressure is released.	Can be remedial for the weak swimmer. Variety for other swimmers as kick is essentially the same. Teaching points related to foot position, legs passing close together, continuous kicking.
7**. On the back with a noodle** across the back and under the arms.	For those with difficulty kicking. They can find it easier to get the movement when the feet break the surface at the end of the	Can be remedial for the weak swimmer. Variety for other swimmers as kick is essentially the same. Teaching points

	upbeat (leg extension), as the water pressure is released. Can be more difficult to get the flat body position.	related to foot position, legs passing close together, continuous kicking.
8. **On the back with 1 float** kicking.	For those with difficulty kicking. They can find it easier to get the movement when the feet break the surface at the end of the upbeat (leg extension), as the water pressure is released.	Variety, as kick is essentially the same. Teaching points related to foot position, legs passing close together, continuous kicking.
9. **On the front with 1 float** with the face in the water.	Kicking and streamlined body position.	Emphasise streamlined body position/ head position and kicking. Blowing out into the water, lifting or turning the head to breathe as appropriate to other skills mastered.
10. **Kick with one float** with the head up.	Kicking action. Concentration on kick (not on face in / or breathing).	Emphasise leg action / technique on the kick.
11. **Kicking on the front with a float inclined** / vertical.	Float provides extra resistance. Only for the able swimmer. Used for strengthening the leg kick.	Float must be submerged to be effective. Larger float is more difficult. The more vertical the float the more difficult the task. Large floats are only for able swimmers.
12. **Rolling kick**, side / front /side / front etc.	Building the body roll for the stroke. To start arms by the sides. Kick 6 on right, 6 on front, 6 on left, 6 on front etc.	Emphasis on roll and getting the upper shoulder out the water. The concentrating on the continuous kick, pointed toes. Breathe when on side.
13. **Kicking on the side**, arm on the side you are lying extended, other arm by the side. A width on one side, then change sides.	Variation. Water pressure is equal on upbeat and downbeat. Establishing the roll and kick.	Keep the head still against the raised shoulder to aid breathing.
14. **Kicking on the side** can be done as 6 kicks one side, roll to front 6 kicks, roll to other side and 6 kicks. 1 arm stretched up on the sides and both up when	Variation. Water pressure is equal on upbeat and downbeat. Establishing the roll and kick closer to the full stroke position.	Keep the head still - the shoulder should be raised towards the stationary head.

on front.		
15**. Kicking with fins** (preferably 'short' fins). Any practices from the range of kicking practices can be done with fins.	Two possible functions. Propulsion for the very weak swimmer/swimmer with poor ankle flexibility. Strengthening for the able swimmer.	If flippers are used too much they are stressful on the feet, ankles and legs. If overused pupils feel ineffective without them. Take care/ supervise fitting and use of fins to avoid damage (damage to fins and injury to pupils). Limited distance to start, build up gradually.
16**. In 2's with a float** (preferably a barbell float / large float or noodle) between the partners who face each other holding the float between them and try to kick so that they move their partner backwards.	Challenge / Fun activity. Can be used for any ability level. Requires constant kicking. Only use very occasionally. Encourages effort but does not necessarily help technique i.e. effort will increase due to the challenge but technique may deteriorate.	Match pairs well and the practice can go on for a reasonable time. Arms must be kept straight. Can be with/without fins.

Arm Practices

PRACTICE (what to do)	USE (when / why to do it)	COMMENTS (+ teaching points)
1. **Static standing in shallow water** - lean forward so that face / shoulders are in the water and practice arm action.	Elementary practice of arm technique (breath holding). Only done for limited time.	Upper trunk should be in a realistic horizontal swimming position and face in the water. Points of technique on arms: entry, scull to catch, high elbow on recovery etc.
2**. As above walking** across the shallow end.	Elementary practice of arm technique (breath holding).	As above.
3. **As above - walk to halfway**, push off and swim the rest.	Elementary practice of arm technique. Breath holding when swimming.	As above.
4. **Full stroke over short distance** e.g. width.	For all stages of technique developments.	With single points of technique as appropriate to the aim of the session.
5. **Extended 'doggie paddle'**.	Developing the long underwater	Can be done head up or with the

	phase of the stroke in front of the body.	face in the water. Keep elbows high.
6. **Single arm with a float held in the other hand.**	The start of developing the technique / concentrating on one part of the arm action.	Can focus on the entry, catch, propulsive sweeps or the recovery. Can focus on the sculls within the arm pull. Teaching points from the arm technique or from sculling.
7. **Reverse lobster scull.**	Relates to the 'catch' / moving into the propulsive phase.	Arms stretched out in front, straight, sweeping out / in with the hands. Changing the pitch of the hands.
8. **Canoe scull**	Relates to the insweep of the arm action.	Arms below the shoulder / chest area, elbows bent, hands sculling in / out with the palms facing back. Change of pitch of hands.
9. **Arms only with float**/ pull buoy between the legs.	Develop arm technique and / or arm strength.	Only for able swimmers; (for the less able swimmer it is unsuitable as holding the float and not being able to breathe, presents too many problems for them to devote any attention to technique points.)
10. **Catch-up crawl**.	To develop length of stroke/hand entry/general alignment.	The left arm remains in front in the extended position until the right hand touches it as it enters the water. The right arm then remains there while the left arm pulls, recovers and enters to touch the right hand, etc.
11. **Single arm crawl**; right arm 1 width or length, left arm 1 width or length, the other arm is held extended in front. Can be done as • full stroke swimming • arms only with a pull buoy	Develops length of stroke and allows concentration on the entry / pulling pathway / recovery etc.	Initially pupils may have difficulty holding the static arm in place and may have to concentrate on this aspect.
12. **Single arm crawl**; 3 right	As above	Can be varied 3R, 3L, 2R,

pulls, 3 left pulls, etc.		2L, 1R, 1L, etc.
13. **Single arm drawing the thumb up the side** of the body on the recovery phase from below the costume line up to the armpit. Other arm stretched out in front.	Develops high bent elbow recovery.	Thumb must 'touch' the side all the way up from below the costume line at the thigh to the armpit then reach straight forward for entry.
14. **Full stroke drawing the thumb up** the side as above.	As above.	Slow the pace down – feel the thumb scratch up the side.
15**. 'Fists', single arm**, using the arm with the fist clenched.	Use of 'forearm' part of the paddle as well as the hand.	Reduces hand size so makes use of the rest of the forearm as the 'paddle' more important.
16**. Fists', full stroke** as above.	As above.	As above.
17. Arm practices **with hand paddles** • single arm • arms only • catch up drills • full stroke	To develop points of technique and / or strength. **Only for able swimmers who have already built up some strength / are comfortable swimming distances.** Due to the bright colour, the paddles are easily seen for technique observation by the teacher.	Introduce gradually using short distances, or the added resistance can cause shoulder strain / damage / injury. Build up amount done over time. Paddle size should suit the age / experience of the pupils. Concentrate on technique points as suited to the pupil / aim of the session.

Breathing Practices

PRACTICE (what to do)	USE (when / why to do it)	COMMENTS (+teaching points)
1. **Blowing bubbles** in the water	Forceful exhalation to develop the movement of air in / out	See /hear /feel the bubbles. If it has not been taught thoroughly as part of learn to swim it might be necessary to do submerging work first.
2. **Bobbing up and down** on the spot to get exhalation into the water, inhalation above the surface. **Repetitive bobbing** e.g. 10 bobs without pausing.	Elementary breathing to encourage exhalation / inhalation.	Encourage 'blow' out of bubbles, see, hear and feel the bubbles. Aim for repetitive 'bobbing' – if they cannot do it repetitively then they are not actually happy submerging or they are not

		actually breathing in / out. See / feel the bubbles
3. **Face in the water turning head to the side** and back into the water fitting in the breathing. Can be done holding the rail initially then standing in a space in shallow water.	For timing of exhalation and inhalation with head turning. Swimmers should be able to keep this going for 10+ breathes without pausing.	Check head rolling to side position. One side of face stays in the water. Encourage blowing of bubbles to check movement of air in/out. See / feel the bubbles.
4. **Static arm and breathing practice** - standing leaning forwards with the face submerged. • initially use only one arm (that on the preferred breathing side) other arm out in front • incorporate both arms • breathing to the non–preferred side	For timing of breathing with arm action. Important to do both preferred breathing side and non – preferred side.	As above, plus timing of head movement with the arms.
5. **Walking across the shallow** end doing arm action and breathing but concentrating on fitting in the breathing.	For timing of breathing with arm action.	Keep side of face in the water. Turn head as am is exiting water into recovery. Concentrate on breathing out.
6. **Walking doing arm action and breathing** - taking one breath while doing arm action walking then push off and swim, take one breath while swimming.	Fitting in breathing with stroke.	Keep side of face in the water. Turn head as am is exiting water into recovery. Concentrate on breathing out.
7. Float held in 1 hand, swimming with **single arm breathing to the side** of the working arm.	Fitting in breathing / turning of head with the arm stroke.	Some children experience difficulty holding the float with one hand. Small float with the hand held over the top is easiest. Keeping one side of face in water / side of head against the upper arm turning face back to underwater / centre position straight after inhalation.
8. **On the spot submerging face with a snorkel tube** in the mouth, emphasize the steady	For the very occasional swimmer who experiences great problems breathing out into the water/	It will take time to get used to the snorkel, seal off mouth round snorkel, etc. Encourage blow

rhythm of breathe in / out.	getting a rhythm of breathing in / out.	out/suck breathe in.
9. **Swimming face in the water with a snorkel**, emphasise the breath in / out.	Developing breathing with stroke pattern.	When confident at this stage with regular inhalation / exhalation taking place then attempt without snorkel.
10. **Widths full stroke** building up from 1 breath per width to 2 or 3 etc.	Fitting breathing into full stroke.	Check that breathing is actually taking place i.e. can you see bubbles blowing out? Problems with this become apparent as the distance to be swum increases.
11. **Widths / lengths full stroke** with regular breathing. • lateral • bi-lateral	Practice of regular breathing pattern.	Can be lateral or bilateral. As above check that breathing is actually taking place not just turning the head. Problems become apparent as the distance increases
12. **Widths / lengths full stroke with bilateral breathing**.	Developing bilateral breathing and full stroke work over greater distance.	Technical points as for other practices. Increase the distance gradually as the breathing is shown to sustain the activity level.

Summary of main points of technique at elementary / improver level

- Flat body position with face in the water.
- Continuous leg kick.
- Feet are 'pointed'.
- Legs must come up to the water surface, listen to the 'bubble' 'bubble' sound.
- Arm recovery with elbow high.
- Arm entry fingers/thumb first, in front of the ear/shoulder.
- Arm pulls with the arm bent and sweeps through to the thigh.
- Breathing taken by turning the head to the side when the arm on that side is beginning to recover.
- Roll the head to the side, do not lift it.
- Ensure that exhalation takes place either into the water or just as the head is turning.

These are the fundamental points of technique that it would be expected would be being reinforced throughout most teaching of the above practices.

2.3.3 Faults and Corrections for front crawl

The best way to know how to correct the fault in a swimmer's stroke is to understand how the body moves in water. If you understand how the body moves in water i.e. what happens when you raise your head, what happens if you swing your arms wide etc. you will understand why things happen and will therefore know how to correct them. The following table provides you with a number of key / frequently found faults in young swimmers / early stage learners, shows the most likely reasons for those faults and provides suggestions of practices that could be used to correct them.

In the first instance spotting the fault and getting it correct (i.e. spotting the primary fault / the most basic of the faults) requires both good observation and adhering to the procedure of looking at the stroke systematically i.e. BLABT. Look at the body position …. then the leg action ….. then the arm action ….. then the breathing …… then the timing. Pick the first fault as the most important.

	Stroke Fault	**Causes**	**Corrective practices**
1	The face / head out of the water.	• Fear of putting the face in / not able to submerge the face/ • Failure to master aquatic breathing.	Core aquatic skills practices for submerging and aquatic breathing.
2	The feet very low in the water.	• Head raised / face out of the water – body acts like a see-saw if the head end is raised the feet end drop. • Less likely – poor kick.	Core aquatic skills practices for submerging and aquatic breathing. Kicking practices.
3	Keeping stopping.	• Not able to breathe / not getting a breath in even if turning head.	Core aquatic skills practices for submerging and aquatic breathing.
4	Kicking with the feet coming right out of the water and splashing back in.	• Over bending of the knees on the upbeat • Kicking with knees bent • Head too low	Basic kicking practices focussing on foot position, continuous small kicks, kicking on the back. If head too low, practices for body position.
5	Legs zigzagging from side to side behind the body. (lateral swing of legs)	• Low wide swinging arm recovery or a propulsive phase that crosses the mid-line – on the action / reaction principle – arm moves sideways / swings and legs react • Arm crossing the mid line on entry or in the pull phase • Weak leg kick (but likely	Arm practices focussing on high bent elbow arm recovery e.g. single arm. Arm practices such as single arm with a float – entry with hand touching the side of the float. Watching the arm / hand passing under its own side of the body i.e.

		to be combined with one of the arm action causes).	not crossing the mid-line.
6	Doing legs only with a float and making little forward progress (or even going backwards)	• No plantar flexion (pointed toes) / ankle dorsi flexed (foot flat position) which acts like a brake. • Kicking with straight legs	Basic kicking practices focus on the foot position. Kick with fins Kicking on the side / back.
7	Showing a wide arm entry position	• Stiff shoulder joints • Lack of roll round the long axis of the body	Body position and roll practices then a) roll with kick b) roll with arm action, focussing on roll.
8	Showing an arm entry position across the midline (e.g. in front of the opposite shoulder).	• Excess body roll • Straight arm recovery • Over turning the head to breathe.	Single arm with a float – entry beside the float.
9	Arm pulling across under the body to the other side.	• Head turning too far to breath • Poor breathing technique taking too long to exhale and inhale once the face is clear.	Breathing practices that concentrate on exhaling into the water.
10	Showing a straight arm recovery.	• Lack of understanding of the action	Single arm drawing the thumb up the side from hip to arm pit.
11	Pausing with the head turned to the side to breathe.	• Not exhaling into the water when the face is in therefore needing too long once the head is turned to breath out and then breath in.	Breathing practices (repetitive bobbing, standing with arm action, walking doing arm action, single arm) all focussing on blowing out / exhaling.
12	Turning the head too far to breathe.	• Pulling across the mid line of the body. • Poor breathing technique / not exhaling into the water.	Breathing practices concentrating on exhaling into the water.