

Concept 2 | Schools Training Guide

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 **concept 2**
INDOOR ROWER

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The Concept 2 Education Programme has, since its inception in 1994, provided high quality teaching and training information for teachers and pupils. This Schools Training Guide pulls all of this information together into one place for the first time. It includes technique guidance, schemes of work, lesson plans and teaching resources as well as information about raising money through the use of the Concept 2 Indoor Rower.

This document is supported by the education section of the Concept 2 website, www.concept2.co.uk/education the website resource will grow with any resources, lesson plans and schemes of work that teachers around the country are willing to share. If you would like to make any comments about the information available or to add some resources of your own please email education@concept2.co.uk

Concept 2s involvement in education stretches beyond simple use of the indoor rowing machine and DYNO as training tools. The Indoor Rower is a valuable tool in the delivery of Physical Education, Anatomy and Physiology, Sciences and Information Technology. It is also used widely for team building and personal development days within schools, and has been found to be very motivational for pupils who have lost interest in main stream sports. The Concept 2 Indoor Rower is the only piece of exercise equipment that has created a sport in its own right and this has also been embraced by schools around the country with schools indoor rowing leagues springing up as well as inter form and internal schools competitions.

Section 3: What you can do with an Indoor Rower

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The Concept 2 Indoor Rower was first developed in Vermont in the USA in 1981 as a means to continue rowing training through the winter even though all of the water was frozen. The original machine was a simple handle on a chain working an air resistance flywheel. In the last 23 years the Indoor Rower has gone through many changes, but the important parts are still essentially the same, the user still holds the handle which is attached to a chain and operates an air resistance flywheel. The differences are the technology and the design of the machine. The original or Model A was a simple bicycle wheel with blades attached to the spokes, and had a simple stroke counter. The current version, the Model D, which was released in the summer of 2003 has a moulded flywheel housing, and ergonomically designed seat and handle, but the biggest difference is the monitor. The third generation of the performance monitor – the PM3, offers the best monitor of any piece of fitness equipment, with the ability to set different workouts, record your training on a LogCard and race against your previous workouts, but by far the most important feature of the monitors on any of the Concept 2 Indoor Rowers is the fact that the times and distances are directly comparable between machines. This is unique to the Concept 2 Indoor Rower and as a result is the only piece of fitness equipment that has given rise to a totally new sport – Indoor Rowing with National, European and World Championships.

For more information about anything related to Indoor Rowing please see www.concept2.co.uk

What can you do on an Indoor Rower?

The Indoor Rower has a wide range of uses. It is a standard part of the training, preparation and testing of all international rowers, and is also popular in sports clubs, fitness clubs and local leisure centres throughout the country. It can be used by individuals of all ages and ranges of ability and for a variety of purposes.

Dry Start

The Indoor Rower most obviously gives young people the opportunity to learn the new skill of rowing in complete safety. It can provide a 'dry start' from which progress can be made to on-water rowing. The beginner can get the feel of rowing and learn the correct technique which will create confidence before venturing out on the water.

Cardio-Vascular Work

One of its most important functions is as a cardio-vascular fitness machine. It provides an excellent and thorough workout for every major muscle group in the body as well as working the heart, lungs and circulatory system in a complete range of intensities. It can be used for general fitness work, for basic conditioning for those who have taken little exercise, as part of a weight management programme and for cross-training. Due to its versatility therefore, the Indoor Rower can complement training in many sporting activities, since it is an excellent means of improving both aerobic and anaerobic fitness. For those interested in using the Indoor Rower for training, there is a detailed Training Guide available.

The Performance Monitor 3 (PM3)

The key to the Indoor Rower is the revolutionary Performance Monitor. Unique amongst fitness machines, the Performance Monitor offers a wide range of functions for both the beginner and expert.

The main principle behind the Performance Monitor, and what helps set the Indoor Rower apart from other fitness equipment, is that the times and distances it shows are comparable between different machines and users. Not only does this mean it's possible for you to reliably chart your progress, but it has led directly to the creation of an entire sport.

Now in its third generation, the PM3 has a number of new features for the serious rower, while also retaining the simplicity of earlier models. You can either get on the machine and just row, or you can choose from a library of pre-set workouts that load instantly.

Each PM3 can be used in conjunction with a Concept 2 LogCard. The LogCard will automatically store all your workout data so that you can chart your improvement over time. You can also program and store your favourite workouts on the LogCard for instant set-up, as well as download all data to a PC. Each Log Card holds the information for five users. Log Cards can be bought individually or there is a discount available for bulk purchases.

When you're rowing, as well as monitoring your heart rate (using the optional heart rate interface and chestbelt), you can race against your previous workout results, or against a PaceBoat. You can also choose from a variety of units and display options, including watts, calories, a Bar Chart and a Force Curve.



The Damper Lever

The damper allows air to flow into the flywheel. A higher damper setting allows more air into the flywheel and increases the air resistance, so the work feels harder. A lower setting admits less air and offers less resistance, so the work feels lighter. Initially, it is best to work on damper setting 3. As technique improves, you can experiment with the damper setting.

The PM2+ Computer Interface

The PM2+ allows the Indoor Rower to be connected to an IBM compatible personal computer. The Windows-based software can be used by a single user to display data in various formats for the monitoring of training. Several machines can be linked together for training or for racing. It is possible to train or to race with other people over the internet.

Software can be downloaded free from the Concept 2 web site: **www.concept2.co.uk**

E-rows are an exciting new development for schools. Provided a school has a PM2+, a compatible computer and the software, it is possible to organise races, training and other events by linking schools via the internet and without any schools having to move from home base. Machines are linked up to a screen which shows a race. 'Race View' displays the position of 10 boats at a time on the screen and adds to the excitement and drama of the occasion. This is suitable for use in lessons, demonstration lessons and for extra curricular indoor rowing fixtures.

Setting up the Machine

The machine comes with clear instructions for assembly.

Make sure that you can perform the simple operation to disassemble the machine for storage in two sections, and have read the instructions on maintenance.

Starting to Use the Machine

Staff will want to be sure that they have familiarised themselves with the basic functions of the machine before introducing its use to pupils. It is well worth spending time learning the correct technique in order to avoid risks and to benefit fully from using the machine.

To assist new users, let them see the eight minute Technique Video, then work with them using the step by step Teaching Sequence, correcting faults as they occur.

In schools, pupils could watch the video on their own or in small groups, and the coaching could be done either by a member of staff, or a pupil who is an experienced user.

Health and Safety

It is important to emphasise safety aspects. Full safety guidelines are included in the Technique Handbook. You may want to put up some Safety Rules by the machine:

- Only use this machine after instruction
- Long hair tied back, no loose clothing to catch under the seat rollers
- Row with both hands
- NEVER let go of the handle whilst rowing
- Do not twist the chain or pull from side to side

To encourage sensible use of the machine, we have included a section for pupils in this booklet. It can be photocopied and used as a handout.

Sport promotes a powerful, positive image and is an essential part of any successful school. Indoor Rowing raises the profile of the school and the considerable benefits of rowing are available on dry land, including competition on an equal footing with the best rowing schools. The Indoor Rower can be used by boys and girls of all secondary ages and has the major advantage for schools of being an extremely safe and relatively risk-free indoor activity. Adding Indoor Rowing to sports provision in school could enhance the life of the school in a variety of areas:

Curriculum and Education

- There are a wide range of possible uses, from excellent cross-training for the serious track, playing field or pool athlete, to realistic progressive fitness programmes for the unfit and demotivated, unable to cope with the traditional school regime of team games, gym and athletics.
- There is a carefully-structured education programme with well-prepared and clear support materials to assist staff.
- The monitor with its recording and feedback functions, enables detailed and accurate records to be maintained. These can be used to monitor progress and plan training, or as evidence for Records of Achievement and reports.
- The experience of Indoor Rowing, recorded in the Indoor Rowing Log, is an excellent addition to a Record of Achievement, CV, university or job application.
- The optional heart rate monitor opens up possibilities of detailed practical studies of heart rate exercise in curriculum areas such as Biology, Human Biology, Sports Studies and Sports Science.

Promotional

- Indoor Rowing enables all schools to compete on equal terms - even with the elite rowing schools.
- It is a sport in its own right, with numerous motivational events and incentives which require very little organisational input from busy staff.
- Publicity is given to individual and team efforts and achievements in the publications of Concept 2. Special events may be featured on the Concept 2 web site. Individual and team performances are listed in Concept Rankings.



Social and Community Links

- The Indoor Rower can be used by anyone, which makes it ideal for staff, parents and pupils - boys and girls - to work either cooperatively or in safe and healthy competition with each other.
- Access to several machines increases the range of activities:
 - Crew Class (group rowing) can be embarked on
 - community and charity fund-raising events become possible
 - schools can organise individual or team competitions on a class, year group, or house basis
 - inter-school team competitions can be held.

Minimal Maintenance and Supervision

- Maintenance is minimal. The machine is solid, robust and reliable. The chain should be oiled regularly and the monorail should be wiped down after each use.
- Once good and safe technique has been established, the user can embark on individual programmes with minimal supervision.

Pupils enjoy working on the Indoor Rower. Unlike many adults, they have no inhibitions about attempting a new skill and are not daunted by the possibility of not getting it right straight away. They will 'have a go' and relish the opportunity to do something different.

An Opportunity for Individual Work

For pupils who do not enjoy team games, gym and athletics, Indoor Rowing can be a happy alternative, since it allows them a welcome opportunity to work individually at their own level and with a degree of privacy. The monitor is controlled by them and feeds back the results of their efforts to them individually. The autonomy which is allowed by the machine is attractive to pupils who enjoy working independently. Pupils can control their own experience. They have the opportunity to plan, perform and evaluate their own work.

Many Applications

Indoor Rowing meets a range of needs. It is a top-rate cardio-vascular machine, ideal for all forms of fitness training and cross-training. In addition, it is weight-bearing, so an excellent aid for pupils wishing to manage their weight, who may find other forms of exercise uncomfortable or embarrassing. It may allow pupils with some disabilities to exercise safely.

Curriculum Links

The up to date technology of the monitor, the PM3, and heart rate facility give pupils the opportunity to study the effects of exercise with the back-up of reliable data. The range of applications to the curriculum is noted elsewhere.

Records and Evidence

The monitor means that it is easy for pupils to keep a check on their work and progress. They can keep clear records of their efforts and achievements, which can provide valuable evidence for ROAs. Indoor Rowing adds interest to a Record of Achievement, a CV, a university or job application.

Competition

The opportunities for the fun and excitement of competition in and between schools are legion, more information is available from Concept 2. Pupils can help in the preparation, publicising and organisation of competitions; in the collection, collation, analysis and distribution of results and data.

Ongoing Participation and Progression

A major benefit for young people who enjoy Indoor Rowing is the possibility of continued participation beyond school. Many gyms and leisure centres now have Indoor Rowers, and local rowing clubs will offer access to coaching and on-water rowing.

There are many opportunities for those with the ability to progress to higher levels; Indoor Rowing is a sport in its own right, and there are many competitive events. Concept 2 has a wide range of incentives at all levels and for all age groups.

Indoor Rowing and the National Curriculum

The Indoor Rower, with its sophisticated monitor, its heart rate facility, and its ability to link with a PC meets a number of NC guidelines in Science, PE and IT.

Science

Key Stages 3 and 4

Experimental and Investigative Science Planning experimental procedures

- Obtaining evidence

- Analysing evidence and drawing conclusions

- Considering the strength of evidence (KS3)

- Evaluating evidence (KS4)

Life Processes and Living Things Humans as organisms:

- Nutrition

- Circulation

- Breathing

- Respiration

- Health

- Movement (KS3)

- Nervous System (KS4)

- Homeostasis (KS4)

Physical Education

Key Stage 3

Pupils should be given opportunities to engage in health-promoting activity, where possible within the local community.

Key Stage 4

Throughout the Key Stage, pupils should be given opportunities to participate in frequent physical activity conducive to a healthy lifestyle.

They should be taught to plan, undertake and evaluate a safe, health-promoting exercise programme.

They should undertake different roles such as performers, coach... and official.

They should prepare and monitor an exercise programme for a healthy lifestyle.



Key Stages 3 and 4

Communicating and handling information. Use IT to handle and communicate information in a variety of contexts.

Key Stage 4

Learn to operate unfamiliar systems. Apply and continue to develop their IT skills in order to enhance their work in a variety of subject or vocational areas.

GCSE and A Levels

Biology, Human Biology, Physics, Sports Studies, Sports Science and ICT courses can be enhanced by using the Indoor Rower and the DYNO.

Individual practical work is both safe and rewarding and gives ample opportunity for experimental work which can be written up as GCSE and A level coursework.

A level Sports Studies students can be trained to administer the Baseline Assessment testing programme for year 7, or encouraged to organise and run competitions for younger students. There are many opportunities to exercise the kind of responsibility which would be good preparation for work in the leisure industry.

How Indoor Rowing Might Fit into the Life of Your School

During Normal Lessons

- For individual pupils who cannot participate in the planned lesson due to minor illness or injury (the machine is weight-bearing, and can be used for gentle exercise).
- As part of a circuit.
- When a variety of activities is offered.
- For pupils for whom team games or traditional activities are inappropriate. Pupils who may have problems participating, for any number of reasons including weight problems, might well be able to benefit from time on the machine.

It is a safe, indoor exercise which can be done without supervision after initial instruction.

For Fitness Training

For any individual who wishes to bring variety into their training schedule. Indoor Rowing is excellent for cross training, particularly for improving cardio-vascular fitness. The user can do a very thorough workout in safety and comfort when the weather is bad. Team members, athletes and players could make extensive and very effective use of the machine.

For Personal Development

For individual work. Because the monitor gives instant feedback, pupils can record their efforts, either noting cumulative time or distance totals, or recording improvements in performance (e.g. times for 1,000/2,000metres; their best 'pull'; distance covered in 30 seconds, etc...). Their personal endeavours and accomplishments could be used in their Records of Achievement.

Some pupils may be motivated by Concept 2's incentives programmes. For more information please visit www.concept2.co.uk

Competitions

There are many opportunities for competition - individual, inter-form, inter-house, inter-school, even on the internet. It is also possible to consider competitions or activities between staff/parents/pupils, as well as sponsorship and fund-raising events. It is vital that competitors should observe safety procedures, particularly that they should warm-up prior to competition.

Individual Competition (can often be organised by pupils)

- Lunch time 30 second sprint for all-comers. Set the timer for 30 seconds and record the distance covered. Age-group winners, boy and girl.
- Best pull. Warm up. Row 10 strokes hard. Record the best split (i.e. the lowest figure on the central display).



How Indoor Rowing Might Fit into the Life of Your School

Team Competition Formats:

- Year or House group teams of six (three boys and three girls), each row 500 metres (or one minute, if time-row is preferred). Winning team records lowest accumulated time (or highest accumulated distance for time-row).
- Teams of five (any gender mix), one from each year group. Each member rows a set time on a sliding scale - year 7, one minute, year 8 rows two minutes, year 9 rows three minutes, year 10 four minutes and year 11 five minutes. The shortest and longest distances are discarded, leaving the middle three to score, thereby encouraging the whole team and not individual performance. A similar competition can be done using ten in the team; one boy and one girl from each year group.

Award points for the result:

- 1st = 5 points, 2nd = 4 points, 3rd = 3, 4th = 2, 5th = 1

Total the points to find the overall winner, year group winner, girls competition, boys competition. Indoor Rowing and Strength Training Advice For Schools 18

For Pupils - About the Concept 2 Indoor Rower

Welcome to the Concept 2 Indoor Rower. The best way of keeping fit while sitting down.

Using the Machine

Rowing is a great new skill. With a bit of care, you will be able to master it and do really well.

Before you even get on the machine, you should watch the short video which shows you the best way to row on the Indoor Rower.

Your teacher will take you through the basics and ensure that you are getting it right. Take it steadily in the early stages and practise the sequence you have been shown:

- starting with ARMS ONLY
- then add the BODY MOVEMENT (you should swing your body from a position of 11 o'clock to 1 o'clock)
- then gradually start to bring in the SLIDE, moving 1/4 of the way, then half, then 3/4s and finally all the way along the slide.

Even when you become good, still use this PRACTICE SEQUENCE as a warm-up.

> Taking Care

It pays to get into good habits so that you look after yourself and don't damage the machine - some simple dos and don'ts:

> The Right Clothes

Nothing fancy needed. Just make sure you're wearing sensible gear. No flapping clothes to catch in the seat rollers. Ensure that T-shirts are tucked in, shorts are tied up and the ties are tucked in, shoes should be laced correctly and tied tightly and feet should be firmly attached to the footstretcher with the straps provided.

> Warm Up

Always warm up before you use the machine - do the Practice Sequence, then some stretches.

> Damper Level

Adjust the damper lever (to 3 initially) and put the handle in the handle hook before you sit on the machine. For more accuracy the Drag Factor can be used, a Drag Factor of 120 to 135 should be chosen.

> Footrests

Move the footrests to a comfortable position. The strap should go over the crease in your trainers.



> Handle

Hold the handle with both hands.

Note: Don't try to row with one hand. Don't let go of the handle while rowing. Don't twist the chain.

> At the End of Your Row

- Cool down gently by doing the Practice Sequence in reverse.
- Put the handle in the handle hook.
- Undo the footstraps and free your feet.
- Put the handle gently against the fan cage.
- Stretch.

Planning Your Rowing and Keeping Records

Whether you're rowing just for fun or aiming to improve your skill and fitness, you'll probably want to keep a check on how you're doing. The monitor helps you to do just that. You can record how far or how long you have rowed.

You can tell how fast you are rowing. You can see how strongly you are pulling. All this information can be noted down in a Log Book, so that you can check your progress, see improvement, and plan future work in discussion with your teacher.

Personal Development

When the time comes around for reports and Records of Achievement, or when you are preparing your CV or university, college or job application it's important for you to give the best possible picture of yourself. Indoor Rowing is a 'different' activity. If you have kept a Log of your rowing, you have some real evidence of your experience. As well as showing what you have achieved, it can also be proof of your ability to plan and carry through a programme of work, and evidence of personal qualities such as commitment and determination.

Training on the Indoor Rower

You can use the Indoor Rower in lots of different ways. If you get interested in using it for a specific purpose, check out the Training Guide, a very detailed handbook giving training programmes which range from weight management for those who want to trim down, through basic conditioning and general fitness, to training for 2,000m races and marathons. There is also cross-training advice for you if you are an field or track athlete who wants variety.



For Pupils - About the Concept 2 Indoor Rower

Incentives

Perhaps you're dreaming of becoming another Steve Redgrave in the awesome foursome. And why not - somebody has to do it, so start now. Be there, get the T-shirt - and a certificate.

Distance Awards

Junior (up to 12)	10,000m	25,000m	50,000m	100,000m
Youth (13 to18)	100,000m	250,000m	500,000m	1,000,000m
Senior (18+)	1,000,000m	5,000,000m	10,000,000m	15,000,000m

Or enter your name in the Concept Ranking. Published on-line annually, around May, and open to all. It includes personal best performances for users throughout Great Britain and Ireland in the following distances:

Individual Events:

- 2,000m entries from age 10+
- 5,000m entries from age 13+
- 10,000m entries from age 13+
- 21,098m (Half Marathon) entries from age 16+
- 42,195m (Full Marathon) entries from age 16+

Team Events:

- 1 hour up to four team members
- 21,098m (Half Marathon) up to four team members
- 42,195m (Full Marathon) up to four team members
- 100,000m up to ten team members

Note: All team members must be a minimum age of 16 years.

Where Next?

Indoor Rowing can continue after you've left school. Many leisure centres have the machines. Why not try moving on to on-water rowing? Contact your local rowing club - Sunday morning is usually a good time.

So, where are the next Olympics then?

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To ensure that you get the best results from your Concept 2 Indoor Rower, you are advised to spend some time acquiring the correct rowing technique. Begin by looking at the Concept 2 Technique Video and then read this handbook carefully. The effort that you put in during the early stages to develop good technique will subsequently improve both your performance and enjoyment from exercising on the machine.

Developing Good Technique

The handbook is structured in the same way as the video. It begins by providing an overview of the rowing stroke and then breaks the stroke down into an easy to learn sequence of movements. This is separated into two clear stages:

Stage 1 - The Arm and Body Movement;

Stage 2 - The Slide.

Practise each element of these stages before progressing to the next. Make sure you have mastered all the points of technique in Stage 1 before moving to Stage 2. A more detailed stroke sequence is illustrated on pages 10 & 11.

Provided you follow this easy to learn sequence you should develop a very safe and efficient technique. However, if you have already developed some faults the section on fault identification will be invaluable. It clearly illustrates a number of the most common technical errors with their solutions.

Developing Rhythm

When you have mastered the rowing stroke and are clear about the sequence of movements you can begin to develop rhythm in your rowing. Rhythm is the time relationship between the Drive and the Recovery. The ratio is about 2:1, the Recovery takes about twice as long as the Drive.

The Drive is the power phase of the stroke and should be strong and vigorous. The Recovery is steady and relaxed. The full stroke should be smooth and rhythmic and there should be no discomfort at any part of the stroke cycle. Discomfort usually indicates that you are doing something wrong (check the Fault Identification section).

In the early stages, ignore the monitor and focus on establishing the correct technique. Concentrate on developing a controlled and fluid movement, with effective use of the legs, body and arms in the Drive. Once you can row comfortably for about ten minutes in a smooth,



relaxed, rhythmic manner you are ready to begin a programme of aerobic exercise.

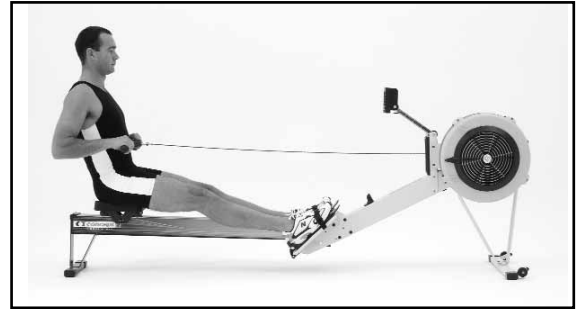
Using the Machine Safely

Some routine precautions for your safety and comfort:

- Check the handle, seat and monorail are clean - no dust or sweat.
- Adjust the damper setting and place the handle in the handle hook before securing your feet.
- Adjust the footrests. If you have long legs you may need to lower the footrests. Fasten the straps securely.
- Sit slightly towards the back of the seat.
- Pull straight back with both hands. Do not row with one hand.
- Do not twist the chain or pull from side to side.
- Do not let go of the handle whilst rowing.
- Keep clothing, fingers and children away from seat rollers.
- When you finish your exercise place the handle in the handle hook.
- After you have released your feet place the handle against the fan cage.
- Ensure the machine is properly and routinely maintained.
- T-shirts should be tucked in, shorts tied up and the ties tucked in and shoes should be tied correctly.

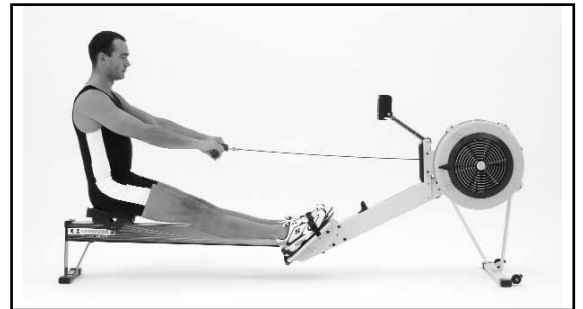
The Finish

- The legs are flat.
- The handle is drawn to the body and held lightly.
- The body is inclined slightly back.
- The elbows are drawn past the body. The forearms are horizontal and the wrists flat.
- The shoulders are down and relaxed.



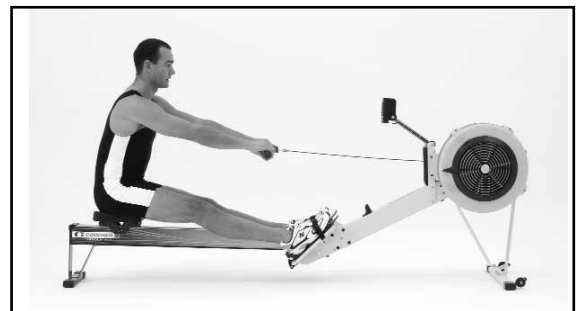
Arms extend

- The arms are relaxed and extended fully.
- The body rocks forward from the hips.



The Body Rocks forwards

- The body rocks forwards from the hips.



The Slide

- AFTER the arms have fully extended and the body rocked forward, slide forward maintaining arm and body position. Legs should be parallel throughout the recovery to prevent knees touching or legs splaying apart.



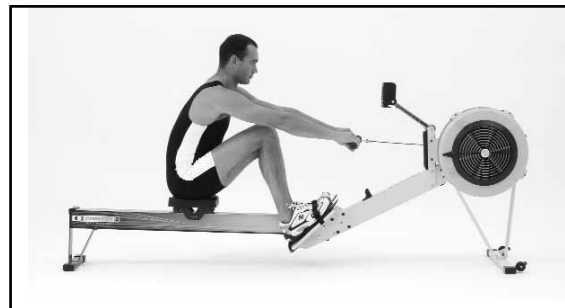
THE DRIVE

- Full Slide - The beginning
- Shins vertical with body pressed up to the legs. The arms are straight and relaxed.
- The position should feel comfortable.



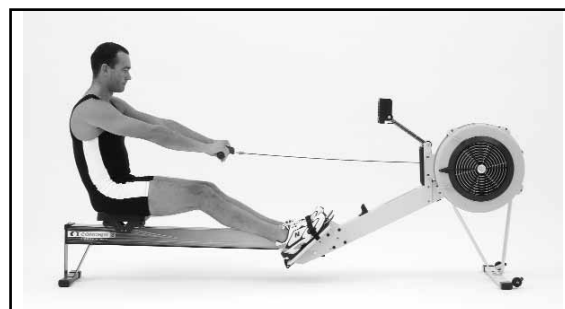
The Start of the Drive

- The legs push down and the body begins to lever back.
- Do not start to use the body too early.



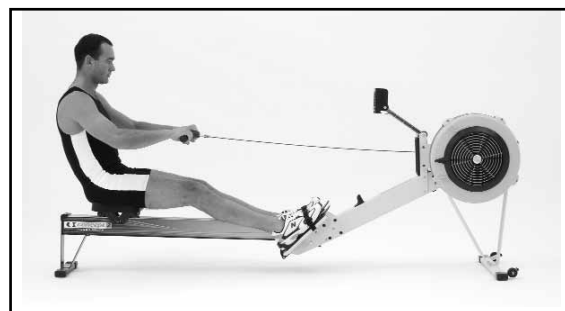
The Drive continued

- The legs continue to push as the body levers back.
- The arms remain straight.



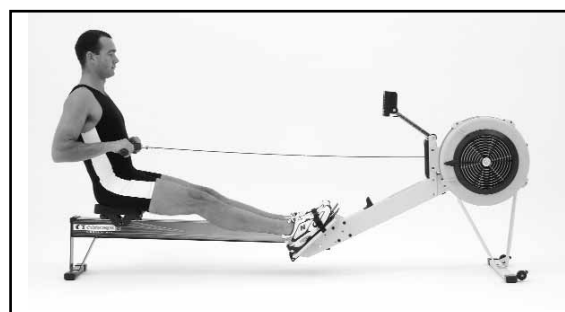
The body stops levering back

- The arms draw the handle past the knees and then strongly to the body, returning to the Finish position. Legs flat. Forearms horizontal.



The Finish

- Lean back slightly, legs flat, handle drawn to the body.
- Forearms horizontal.
- You are ready to take the next stroke.



There are two phases to the rowing stroke:

- i) The Recovery; and
- ii) The Drive

From the Finish position move forward up the slide (the Recovery) to the Beginning of the next stroke. Without pausing, press back and begin the Drive.

The full stroke should be smooth and rhythmic with a ratio of about 2:1. The Recovery takes about twice as long as the Drive. Aim for a smooth accelerated Drive and a steady, relaxed Recovery.

The Recovery



The Finish
Lean back slightly, legs flat, handle drawn to the body



Arms extend forward



Body rocks forward
The arms are relaxed and extend fully.
The body rocks forward from the hips.



Quarter Slide
AFTER the arms have fully extended and the body has rocked forward, slide forward maintaining arm and body position. Hands, Body then Slide.



Half Slide
Continue sliding forward, maintaining the arm and body position.



Holding the back in position draw the handle to the chest.



Three Quarter Slide
Continue sliding forward, maintaining the arm and body position.

Detailed Stroke Cycle



The body stops levering back
The arms draw the handle to the body as the handle is drawn past the knees.



The Drive Continued
The legs continued to push as the body levers back. The arms remain straight.



The Drive Continued
The legs continue to push as the body levers back. The arms remain straight.



Start of the Drive
The legs push down and the body begins to lever back.



Full slide - the beginning
Shins vertical with body pressed up to the legs. The arms are straight and relaxed. The position should feel comfortable.



The Drive



Technical Faults & Solutions

Correct technique is essential for efficient rowing and to reduce the risk of injury. Here are some of the most common errors, with the reasons they are inefficient, and solutions to help you prevent or correct any problems.

Fault

Correction

Rowing with Bent Arms:

When the arm supports a load in one position the muscle remains contracted. Contraction expels blood from the muscles reducing the oxygen supply, increasing lactic acid build up and hastening fatigue.



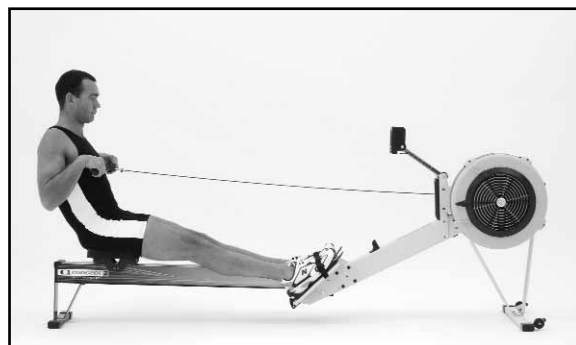
The rowers starts the drive by pulling with the arms rather than pushing with the legs.



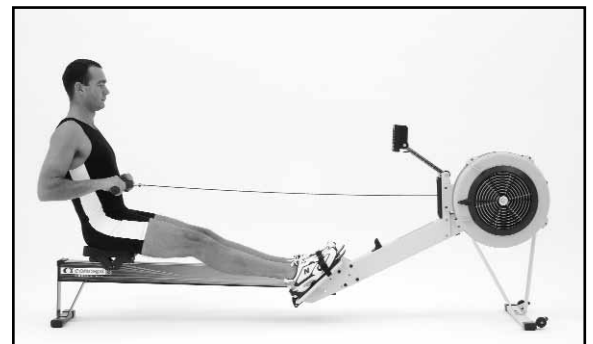
The Drive should start by pushing the legs and bracing the back with the arms fully extended and relaxed. The arms connect the legs and the back onto the handle.

Rowing with Bent Wrists:

Work can be carried out more efficiently and the risk of injury reduced when the load passes through the centre of the joints.



Finishing with bent wrists.



Always row with FLAT wrists. Check the hands at each stage of the Drive.

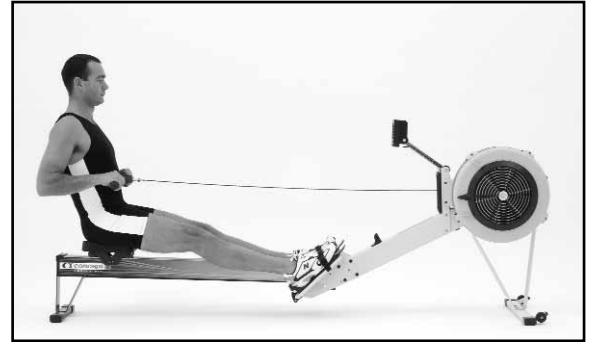
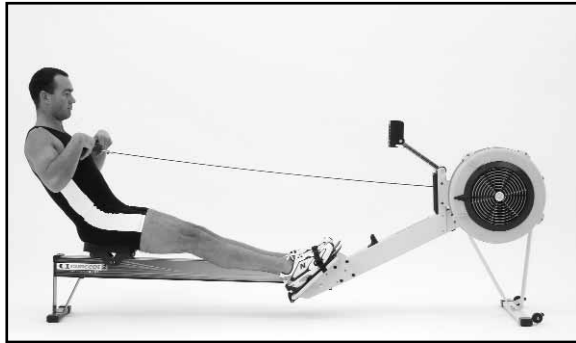


Fault

Correction

Pulling up too high and leaning back too much

Leaning back too far requires a great deal of energy to sqing the body back through the upright position. The energy costs are greater than any gains through rowing a longer stroke.

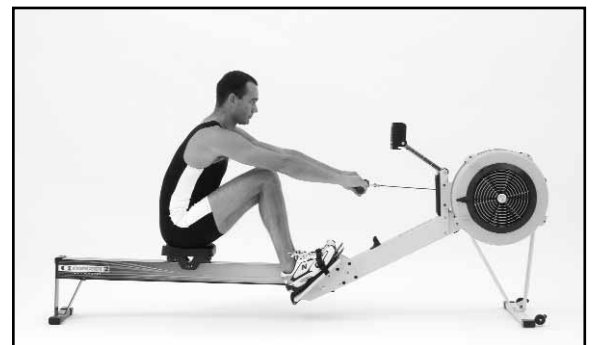


At the finish of the stroke, the rower pulls the handle up too high and leans back too far.

Draw the handle into the body. The wrists should be flat with elbows drawn past the body, forearms horizontal.

Slide Shooting

The legs are the most powerful muscles in hte body and are used to start the acceleration of the flywheel, which represents the greatest load. Any movement of the seat should result in a corresponding movement of hte handle or the legs are not being used to the greatest effect.



The legs push away too early, the back is not braced and so the power is not transferred onto the handle.

The legs begin the drive and the body moves back with straight arms transferring the leg power onto the handle.



Fault

Correction

Using the back to early

Using the back too early means that the weaker muscles are taking on the greater load and stronger muscles are used when the load has decreased.



The rower starts the Drive by swinging the body back rather than pushing the legs. This results in a weak movement.



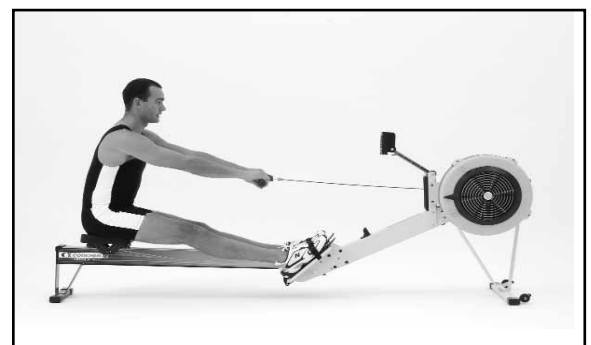
The legs begin the drive and the body levers back with the arms fully extended and relaxed.

Knees up too early

At the beginning of the stroke you need to be balanced and in control in order to develop maximum power. If the recovery sequence of hands, body then slide is not carried out correctly then this will mean a last minute adjustment at the beginning of the power phase, throwing you off balance and out of control.



On the recovery the rower slides forward before the handle has extended past the knees. The hands either hit the knees or they are lifted up to clear the knees.



The recovery sequence - hands, body then slide. After the arms have fully extended and the body has rocked forward, slide forward, maintaining the arm and body position.



Fault

Correction

Over Reaching

Over reaching at the beginning of the stroke places the lower back at maximum flexion. If you then load it up there is a risk of damage in this area.

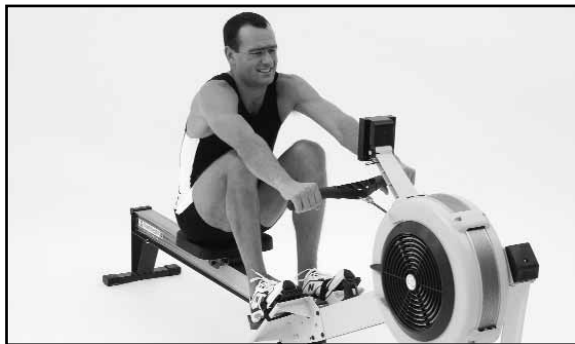


The body stretches too far forward. The shins may be past the vertical. The head and shoulders tend to drop towards the feet. The body is in a weak position for the Drive.

The shins are vertical. The body is pressed up to the legs. The arms are fully extended and relaxed, body tilted slightly forward. This position should feel comfortable.

Body too tense. Grip on handle too tight

The only muscles that should be contracted are those directly involved in moving the flywheel. Any muscles in the shoulders and neck that are not directly involved will just drain energy if tested.



Teeth are clenched, shoulders hunched and the rower is gripping the handle too tightly.

RELAX! Relax the shoulders down, unclench the teeth and relax the jaw. Keep a LIGHT hold on the handle.



Fault

Pulling the body to the handle

Of you pull the body towards the handle there is an enery cost that will not add anything towards moving the flywheel.



At the Finish, the rower, instead of pulling the handle to the body, pulls himself forward to the handle.

Correction



At the Finish the rower leans back slightly, holds the legs down and draws the handle to the body using the upper body as a firm platform.

Section 5 - Lesson Plans and Schemes of Work

Section 5:	Lesson Plans and Schemes of Work	.5.1
i.	Year 7 Scheme of Work	.5.2
ii.	Year 7 Sample Lesson Plan One	.5.3
iii.	Year 7 Sample Lesson Plan Two	.5.4
iv.	Year 8 Scheme of Work	.5.5
v.	Year 9 Scheme of Work	.5.6
vi.	National Curriculum Links	.5.7

Year 7 Indoor Rowing Scheme of Work

Objectives	Using the Monitor to:	Resource Name and Aim	Challenges
<ul style="list-style-type: none"> • Become familiar with the Indoor Rowing equipment and terminology • Understand & practice good technique. Stage 1 <ul style="list-style-type: none"> • The Arm & Body Movement. • The Finish. • The Arm Movement. • The Body Swing. Stage 2 <ul style="list-style-type: none"> • The Slide. • 1/4 slide. • 1/2 slide. • 3/4 slide. • Full slide. Stage 3 <ul style="list-style-type: none"> • The Beginning and The Drive. • The Beginning. • The Drive. <p>Rhythm & Ratio - 2 : 1 or 3 : 1</p> <p>Know the difference between stroke rates.</p> <p>Pupils learn the basic muscles and areas of the body that are used when exercising on the Indoor Rower.</p> <p>Understand how to set the feet in the right position.</p> <p>Understand the correct damper setting to use.</p>	<ul style="list-style-type: none"> • Set the distance of a row. • Set the time of a row. • Determine 'strokes per minute' (SPM). • Understand the meaning of the /500m split. • View intensity/Ave 500m. • Check the drag factor. 	<ul style="list-style-type: none"> • The Traffic Light System - Lesson & Equipment Rules. • The Name Game - Equipment. • The Weakest Link - Technique. • Staying Alive-SPM/Ratio/Technique. • Staying Alive - SPM/Output/Ave 500m/Technique. • E-Row - 1 x 2min & 1 x team 2500m. 	<ul style="list-style-type: none"> • Record the distance achieved for a 2min row at the beginning and end of the course, compare distance achieved. • Compare distance achieved to the Go Race distances on the Concept 2 website. • Frantic Relay - team of 4/5 2500m. • Cumulative Distance Recording - 10,000m & free t shirt from Concept 2. • ARA Dry Skills 1.

By the end of the lesson pupils should:

1. Know the parts of the machine.
2. Know the safe set up and use of the machine using the Red, Amber, Green cards.
3. Be able to tell whether rowing is an action carried out by the arms, legs, back or whole body and have completed the Weakest Link sheet.
4. Have rowed a 2 minute piece.

By the end of the lesson the teacher should:

1. Have a 2 minute score for each pupil participating in the lesson.
2. Have assessed some of the pupils in their ability to identify parts of the machine.
3. Have a sheet with a record of the distance that each pupil has rowed in the lesson to go towards getting the Concept 2 10,000m award.

Safety:

- The teacher should ensure that all the rowing machines are in full working order and the two halves are fixed together correctly.
- The teacher should ensure that pupils are aware of the dangers of having loose clothing or hair.
- The teacher should carry out their normal safety checks on the area.

Resources:

- Indoor Rowing machines.
- Technique video, and TV/Video.
- Score sheets for pupils to record their 2 minute row on.
- Score sheets for pupils to record their overall distance rowed on.
- Name Game Cards.
- Red Amber Green Cards.
- Weakest Link handouts.

The Lesson:

1. Pupils should be introduced to the Indoor Rowing machines using the name game. The pupils should be divided into teams, each team being given one Indoor Rowing machine, each team is given a pack of the 'Name Game' cards and then all teams should be given 30 seconds to put the cards onto the machine where they think they should go. After the 30 seconds the teacher assesses how many they got right and then they are given another go. Pupils should not be told which ones are right and wrong, just how many are right, how many are wrong. This can be built into an active warm up.
2. Once the teacher is confident that the pupils know each part of the machine then they can move on to using the Red Amber Green handout, and the Weakest Link handout. Pupils should be given some direction by the teacher about health and safety before they go on the machines.
3. The pupils should work in pairs, with the rest of the team given roles as observers, recorders and coaches.
4. Once the pupils have done the Weakest Link and worked out that rowing is a whole body sport they should be shown correct technique on the video.
5. The lesson should finish with each pupil recording a distance for a 2 minute row.

By the end of the lesson pupils should:

1. Know the difference between the drive and the recovery.
2. Know the correct technique, recovery - arms, body swing, 1/4slide, 1/2 slide, 3/4 slide and full slide, the beginning of the stroke, the drive, the finish.
3. Know what SPM means and how to row at different stroke rates.

By the end of the lesson the teacher should:

1. Have assessed pupils ability to row with correct technique.
2. Have assessed some of the pupils in their ability to identify parts of the machine.
3. Have an updated sheet with a record of the distance that each pupil has rowed in the lesson to go towards getting the Concept 2 10,000m award.

Safety:

- The teacher should ensure that all the rowing machines are in full working order and the two halves are fixed together correctly.
- The teacher should ensure that pupils are aware of the dangers of having loose clothing or long hair.
- The teacher should carry out their normal safety checks on the area.

Resources:

- Indoor Rowing machines.
- Concept 2 Technique video.
- Score sheets for pupils to record their overall distance rowed in total.
- Red Amber Green Cards.
- Staying Alive sheets.

The Lesson:

1. Pupils should be introduced to good technique using the Concept 2 Technique Video.
2. Pupils are divided into the same groups as last time. Pupils that are not rowing should be coaching, recording distance rowed or observing so that they are ready when it is their turn.
3. The pupils should work in pairs, with the rest of the team given roles as observers, recorders and coaches. Pupils should be given a chance to develop technique and test different stroke rates.
4. Pupils should be given the Staying Alive sheets and set up to compete against each other. Those that are not rowing should be given the job of recording distance, lives lost, being officials etc.
5. Staying Alive should be conducted over 2 mins as a competition with one of the pupils who is not rowing holding up a white flag to indicate they are OK to carry on, or a Red flag when they have lost a life.
6. The pupil who manages to row the furthest before losing all their lives, or in the two minutes is the winner.
7. Pupils then add their distance to total distance rowed sheet.

Objectives	Using the Monitor to:	Resource Name and Aim	Challenges
<p>To understand & practice good technique.</p> <p>To be able to increase/decrease the intensity of a stroke either in single stroke isolation or whilst working on a set piece.</p> <p>To be able to change intensity without changing rate, and change rate without changing intensity or split time.</p> <p>To be able to participate fully in team/crew based rowing activities which involve working to your own, others & given stroke rates.</p> <p>Where possible pupils should be given the opportunity to use slides.</p> <p>Be able to identify a race profile for the three minute set piece. This should have a fast start for 7 to ten strokes, settle into a mid race pace, then accelerate for home in the last 60 seconds, 40 seconds if pupil is less fit.</p>	<p>Using the Monitor to:</p> <ul style="list-style-type: none"> • Be able to work on own, with others & given stroke rates. • Change intensity/output. • Alter stroke rate. • Recognise when to alter stroke rate. • Recall information about performance. • Decide own stroke rate. 	<ul style="list-style-type: none"> • Ergo golf. • Synchronised rowing. • Syncopated rowing. • Minimum strokes relay. • Rowing on slides. 	<p>Challenges</p> <ul style="list-style-type: none"> • Record the distance for the 3 minute set piece at the beginning and end of the course, compare distances achieved. • Compare distance achieved to the Go Race distances on the Concept 2 website. • Cumulative distance recording building towards a PE awards. • Minimum strokes relay. • Dry skills 2. • E-Row.

Objectives	Using the Monitor to:	Resource Name and Aim	Challenges
<p>Understand & practice good technique.</p> <p>Understanding the 'Energy balance' equation.</p> <p>Knowing how to use the Indoor Rowing machine to improve cardiovascular fitness.</p> <p>Be able to participate in a given training session.</p> <p>Be able to design & participate in a training session designed by either themselves or their rowing partner.</p>	<ul style="list-style-type: none"> • Identify calories used. • Predict distance covered (project metres). • Increase intensity/average 500m. • Identify own intensity levels using the 3 stars method. • Complete a continuous training session. • Complete an interval training session. 	<ul style="list-style-type: none"> • Continuous & interval training. • Chocca Shocker. • Own & partners training session. • Three star intensity method. 	<ul style="list-style-type: none"> • Record the distance achieved in a 4 minute set piece at the beginning and end of the course, compare distances achieved. • Compare distance achieved to the Go Race distances on the Concept 2 website. • 10 min row showing good technique & understanding of SPM. • Dry skills 3. • Complete own or partners training session. • Minimum strokes relay. • E-Row.

Physical Education - Key Stage 3

Knowledge, Skills and Understanding

Teaching should ensure that, when evaluating and improving performance connections are made between developing, selecting and applying skills, tactics and compositional ideas, and fitness and health.

Acquiring and developing skills

1. Pupils should be taught to:
 - a) Refine and adapt existing skills.
 - b) Develop them into specific techniques that suit different activities and perform these with consistent control.

Selecting and applying skills, tactics and compositional ideas

2. Pupils should be taught to:
 - a) Use principles to plan and implement strategies, compositional and organisational ideas in individual, pair, group and team activities.
 - b) Modify and develop their plans.
 - c) Apply rules and conventions for different activities.

Evaluating and improving performance

3. Pupils should be taught to:
 - a) Be clear about what they want to achieve in their own work, and what they have actually achieved.
 - b) Take the initiative to analyse their own and other's work, using this information to improve it's quality.

Knowledge and understanding of fitness and health

4. Pupils should be taught:
 - a) How to prepare for and recover from specific activities.
 - b) How different types of activity affect specific aspects of their fitness.
 - c) The benefits of regular exercise and good hygiene.
 - d) How to go about getting involved in activities that are good for their personal and social health and well-being.

Breadth of Study

Athletic Activities

- 10 Pupils should be taught to:
 - a) Set and meet personal and group targets in a range of athletic events, challenges and competitions.

Section 6 - Teaching Resources

Section 6:	Teaching Resources	.6.1
i.	Red Amber Green - Teacher Notes	.6.2
ii.	Red Amber Green Handout	.6.3
iii.	The Name Game - Teacher Notes	.6.4
iv.	The Name Game Handout	.6.5
v.	The Weakest Link - Teacher Notes	.6.6
vi.	The Weakest Link Handout	.6.7
vii.	Staying Alive - Teacher Notes	.6.8
viii.	Ergo Golf - Teacher Notes	.6.10
ix.	Ergo Golf Handout	.6.12
x.	Ergo Golf Score Card	.6.13
xi.	Frantic Relay - Teacher Notes	.6.14
xii.	Synchroergo - Teacher Notes	.6.15
xiii.	Continuous and Interval Training - Teacher Notes	.6.16
xiv.	Three Star Intensity Method - Teacher Notes	.6.29
xv.	Which Muscles Handouts and Work Sheets.	.6.30
xvi.	Chokka Shocka	.6.38
xvii.	Cumulative Distance Recording Sheet	.6.39

This page is designed so that it can be handed out to pupils or displayed on notice boards so that pupils can be given some ownership over what they are doing.

Red Light - Before you get on the machine

- Check that the handle, seat and monorail are clean and free from dirt, sweat and dust.
- Adjust the damper setting to level 3.
- Make sure that the foot strap goes over the crease in you shoes.
- If you have long hair make sure that it is tied back away from your face.
- Make sure that your t-shirt is tucked in.
- Make sure that the monitor is at eye height so that you can see it easily.
- If you are not sure what technique should be used go and look at the pictures on the notice board or ask your teacher.

Amber Light - While you are rowing

- Sit slightly towards the back of the seat.
- Hold the handle with both hands.
- Do not twist the chain.
- Always keep hold of the handle.
- Make sure that your clothing has not come loose and might get stuck in the monorail.

Green Light - After you have finished

- Replace the handle in the handle hook.
- Wipe down the seat, handle and monorail.

Please find version for notice board/handout below.

Red Light - Before you get on the machine

- Check that the handle, seat and monorail are clean and free from dirt, sweat and dust.
- Adjust the damper setting to level 3.
- Make sure that the foot strap goes over the crease in you shoes.
- If you have long hair make sure that it is tied back away from your face.
- Make sure that your t-shirt is tucked in.
- Make sure that the monitor is at eye height so that you can see it easily.
- If you are not sure what technique should be used go and look at the pictures on the notice board or ask your teacher.

Amber Light - While you are rowing

- Sit slightly towards the back of the seat.
- Hold the handle with both hands.
- Do not twist the chain.
- Always keep hold of the handle.
- Make sure that your clothing has not come loose and might get stuck in the monorail.

Green Light - After you have finished

- Replace the handle in the handle hook.
- Wipe down the seat, handle and monorail.

Resources:

- Minimum 5 Indoor Rowers.
- 5 sets of the Name Game Cards.

Objectives:

- Pupils become aware of the names of the different parts of the Indoor Rower.

Method:

- Pupils are divided into teams and given the name game cards and some blue tac or cellotape. They are then given 30 seconds to put their cards in the right place on the machines.
- The teacher then assesses how well they have done, telling them how many they have got right and how many wrong. They are then given 30 seconds to change them. Continue this until they have put all of the names in the right place.

Teaching Points:

- Pupils learn through a combination of common sense and guided discovery the names of the different parts of the Indoor Rower.

Organisation:

- Pupils should start the session sat away from the Indoor Rower, which should be separated from each other so that there is plenty of room for the pupils to move about between the machines whilst sticking the labels on.

Assessment:

- Teachers should use this game to assess pupils knowledge of the names of the different parts of the machine. This will form a part of the Dry Skills 1 from the Amateur Rowing Association.

Seat

Handle

Chain

Monitor

Fan Cage

Flywheel

Handle
Hook

Foot Rest

Foot Strap

Monorail

Damper Level

Chain Links

Resources:

- Minimum 5 Indoor Rowers & PM2 monitors.
- 'Weakest Link' Student task sheet.
- 'Stroke Cycle' reference sheets for reciprocal teaching.
- Technique video.
- Pencils.

Objectives:

- Highlight the role of specific body parts used throughout a 'stroke'.
- Encourage technical progression.
- Develop an understanding of basic monitor functions.

Method:

- As described on the student task sheet.

Teaching points:

- Use this task before even showing them the technique video as it will allow the pupils to 'feel' their own way around using an Indoor Rower first.
- Using the information contained under the 'objectives' section on the scheme of work, concentrate your efforts on the technical points of the stroke starting with 'stage 1'. The photographic images produced by Concept 2 of the 'stroke cycle' are a valuable visual resource, as is the Concept 2 'Indoor Rowing Technique Handbook'.
- Do not 'bombard' rowers with too much technical information. Aim to give student observers a couple of points of 'good' technique to watch out for e.g. on the 'arm pull only' phase, tell students to sit tall & imagine that you are balancing a glass of water on the top of your head!

Organisation:

- Rowing machines can be organised in lines and circles etc, but, a 'star' shape, with all the rowers facing inwards allows the teacher to maintain a good view of all the working machines, as well as those students not actively engaged on the rowing machines.
- Those students not participating on a machine can be given a variety of roles to ensure that they remain on task. These include passive observer, performance judge, reciprocal coach, data recorder or data analyser.
- Unless you have an experienced rower in your class I'm afraid that it is up to you to provide the demonstrations - so make sure that you have had a practice first and that you know what it is about your demonstration that you want to draw the student's attention to!!

The Weakest Link

Your Names _____

Task 1

You are both going to have 3 turns on the Indoor Rowing machine. Each time that you get on the machine your teacher will show you how you must row. Watch and follow the instructions carefully. On each turn you will pull 15 strokes. Write your first score in box 1, write your second score in box 2 and your third score in box 4.

Name	Arms Only	Arms & Body Swing	Metres Difference	Arms, Body Swing and Legs	Metres Difference
	1	2	3	4	5
	1	2	3	4	5

Task 2

Now try and work out how many more metres you were able to row using both a body swing and your arms in comparison to using just your arms only. Put your answer in box 3. Can you work out how much further you were able to row when you used your arms, body swing and legs than you did when you just used your arms and a body swing? Write your answer in box 5.

Task 3

Have another attempt at completing task 1 and use the table below to put your scores into, BUT THIS TIME see if you can beat all of the scores that you got last time!

Remember PRACTICE MAKES PERFECT.

Name	Arms Only	Arms & Body Swing	Metres Difference	Arms, Body Swing and Legs	Metres Difference
	1	2	3	4	5
	1	2	3	4	5

Resources:

- Minimum 5 Indoor Rowers & PM2 monitors.
- Concept 2 Technique Video.
- Stroke Cycle visual aid sheet.
- Red & White flags/markers.

Objectives:

- Encourage good technique.
- Encourage 'lower' stroke rates.
- Understand the meaning of SPM or 'strokes per min' on the monitor display.

Method:

1. Set the monitor to a pre-specified time or distance e.g. 2 mins. or 500m.
2. Give each rower a number of 'lives' e.g. 5.
3. Tell all rowers that they must try to complete their row and at the same time maintain a 'constant' stroke rate trying to keep within the 'zone'. This 'zone' for example could be between 25 - 30 strokes per minute.
4. Each rower should be watched by a partner. Each time that they fall out of the 'zone' they lose one of their lives. This continues until either they lose all of their lives, or they complete their time/distance. NB Allow approx. 10 strokes before they begin to lose lives as inexperienced rowers will need this time to find and settle into the 'zone'.
5. Points can be awarded to teams/individuals as the teacher sees fit.
6. The white flag can be held up until a rower loses all his/her lives and then a red flag is displayed. This visual aid helps the rowers to gauge their performance against the other rowers, this often encourages them to try harder next time.

Teaching Points:

- This challenge should only be attempted once rowers have been introduced to the SPM feature on the monitor display and have had a chance to find out what their average SPM is, having completed a timed row.
- Many students new to the Indoor Rowing equipment seem to think that they are only working hard if they pull lots of 'short' strokes as quickly as they can. The problems with this are twofold. Firstly, 'short' strokes are a very inefficient way of covering distance, and so 'complete' strokes should be encouraged from the start. Secondly moving up and down the slide at speed can only be maintained for a very short time. Students must be encouraged to understand the need to 'pace' themselves in just the same way as they would in a running race.



- Students need to recognise that 'power' can be achieved in each and every stroke provided that each stroke is completed in a controlled, technically correct manner and at a pace they can maintain for the duration of the row.
- It is useful to get the students to listen to the difference in sound that the 'Fly Wheel' makes when short, rapid strokes are made, and compare that to the sound that it makes when longer, more powerful strokes are taken. Students can even be asked to close their eyes and listen. They can then try to guess which style of stroke has achieved the furthest distance on the monitor in a given number of strokes eg 10.
- As students begin to become more efficient technically, they will find it easier to work within given zones. To begin with aim to bring the SPM below 30, so a 'zone' of 25 - 30 could be used. As they improve gradually bring this down to 22 - 24SPM. Widening the 'zone' will make the challenge easier, narrowing it will make it harder!
- This challenge can be extended further as students really begin to improve. Set a low, narrow SPM and a timed challenge e.g. 3 mins. They must try to stay within the 'zone' for that row, but the challenge is also to see who can row the furthest. Now they are having to focus not only on 'stroke rate', but also on the 'power' of each stroke.

Organisation:

- This challenge can be completed as individuals, working in pairs, or as a team competition. However, it is best to let them have a go as individuals first so they can make their initial attempts without the pressure of being part of a team.
- Lots of different points systems can be devised by the teacher and the pupils themselves. Distances can be tallied up as each team member makes their attempt at the challenge. If they lose all their lives before completing the challenge the distance achieved is recorded. A 50m additional reward can be given to rowers who complete the challenge without losing all their lives.
- This challenge is best suited to a 'star' shaped arrangement of machines as all rowers are able to see each other.
- When doing a team competition try to ensure that each team judges another. If they judge their own team mates they will inevitably cheat !!!!!!!!!
- Those students not participating on a machine can be given a variety of roles to ensure that they remain on task. These include passive observer, performance judge, coach, data recorder or data analysis.

Progression:

Staying Alive can also be used with pupils targeting a range of Watts, Pace /500m time or Calories to draw pupils attention to the different capabilities of the monitor.

Resources:

- Minimum 5 Indoor Rowers & PM2 monitors.
- 'Ergo Golf' Student task sheet.
- 'Ergo Golf' Score Sheet.
- 'Stroke Cycle' reference sheets for reciprocal teaching.
- 'Which Muscles' sheet.
- Skeletal Muscle poster for pupil reference.
- Total distance recording sheet.
- Pencils.

Objectives:

- Encourage technical progression.
- Develop an understanding of basic monitor functions.
- Develop the ability to control the distance rowed in each stroke.

Method:

- As described on the student task sheet.

Teaching points:

- Use this task once you are confident that the pupils have a strong basis in technique, and are not going to degenerate into bad technique.
- The photographic images produced by Concept 2 of the 'stroke cycle' are a valuable visual resource, as is the Concept 2 'Indoor Rowing Technique Handbook'.
- The pupils who are not rowing should be either, recording the distance they rowed when it was their turn, acting as coaches to help develop good technique, or using the 'Which Muscles' sheet to work out which muscles are being used during the stroke. A poster illustrating the skeletal muscle system should be available for pupil reference.

Organisation:

- Rowing machines should be separated so that one person in each group is rowing at one time.
- Those students not participating on a machine can be given a variety of roles to ensure that they remain on task. These include, distance recorder, passive observer, performance judge, reciprocal coach and the rest of the group using the 'Which Muscles' sheets.

Unless you have an experienced rower in your class I'm afraid that it is up to you to provide the demonstrations - so make sure that you have had a practice first and that you know what it is about your demonstration that you want to draw the student's attention to. For this game it is especially important to get a good connection at the beginning of the stroke so that maximum distance can be achieved.

Progression:

To differentiate for different abilities using a handicap system based on the results from the first game.

Other golf games are Oarsome Foursomes - pupils play in teams of two, against another team of two, with the members of the team taking it in turns to take strokes, or Ryder Cup - each hole is played as a match, with the total of holes won being counted up, not the number of strokes.

Resources:

- Minimum 5 Indoor Rowers.

Objectives:

- Finish a technical session.
- Develop teamwork.

Method:

- In teams, pupils row a specific length of time, i.e. 30 seconds, then swap over, until all pupils have had a go. If there are un-even numbers then one member of the smallest teams must row twice.
- A variation on this is the team race over a specific distance with team members rowing different distances depending on their strengths, this helps to give pupils an awareness of their strengths and weaknesses.
- Pupils not rowing should be holding the rowers feet and making sure that the rowing machine does not move, this will help improve the score achieved.

Organisation:

- Pupils should work on the machine that they have used throughout the lesson to prevent wasted time re-selecting teams. If one team is obviously stronger than the rest of the teams then a handicapping system should be used.

Resources:

- Minimum five Indoor Rowers machines.
- Stroke Cycle reference sheet.
- Total distance recording sheet.

Objectives:

- Get pupils to row together in time, in replication of rowing in a crew.
- Develop teamwork
- Make pupils aware of the importance of continuous, rhythmic strokes.

Method:

- As Staying Alive sheet but instead of rowing at a specific stroke rate, all of one team row at the same time, following one person - the stroke (like Matthew Pinsent). Once one person gets out of time - give the team ten strokes to get back together before starting again.
- The rest of the group are responsible for checking to see if anyone comes out of time, holding up a red flag if they do. Other pupils should be recording individuals scores so that they can be added to their total distance for the distance awards.

Teaching Points:

- This is useful to develop teamwork, teams need to decide who should be the stroke, this should be left up to them to discover who is best, it is not always the best rower or sports person who is best for this job.
- Use the pupils who are not rowing to identify what makes it easy to follow a stroke.
- Highlight technique points, identifying timing points in the recovery, these are hands away, body over and the start of the stroke and the finish of the stroke.

Organisation:

- The Indoor Rowers can be used in different formations, the easiest is side by side, a star shape is more difficult and in a line like a rowing boat is the hardest.
- The pupils not rowing should be given other roles so they are involved, these might involve coaching, recording or practicing with their team mates doing squat jumps in time.

Progression:

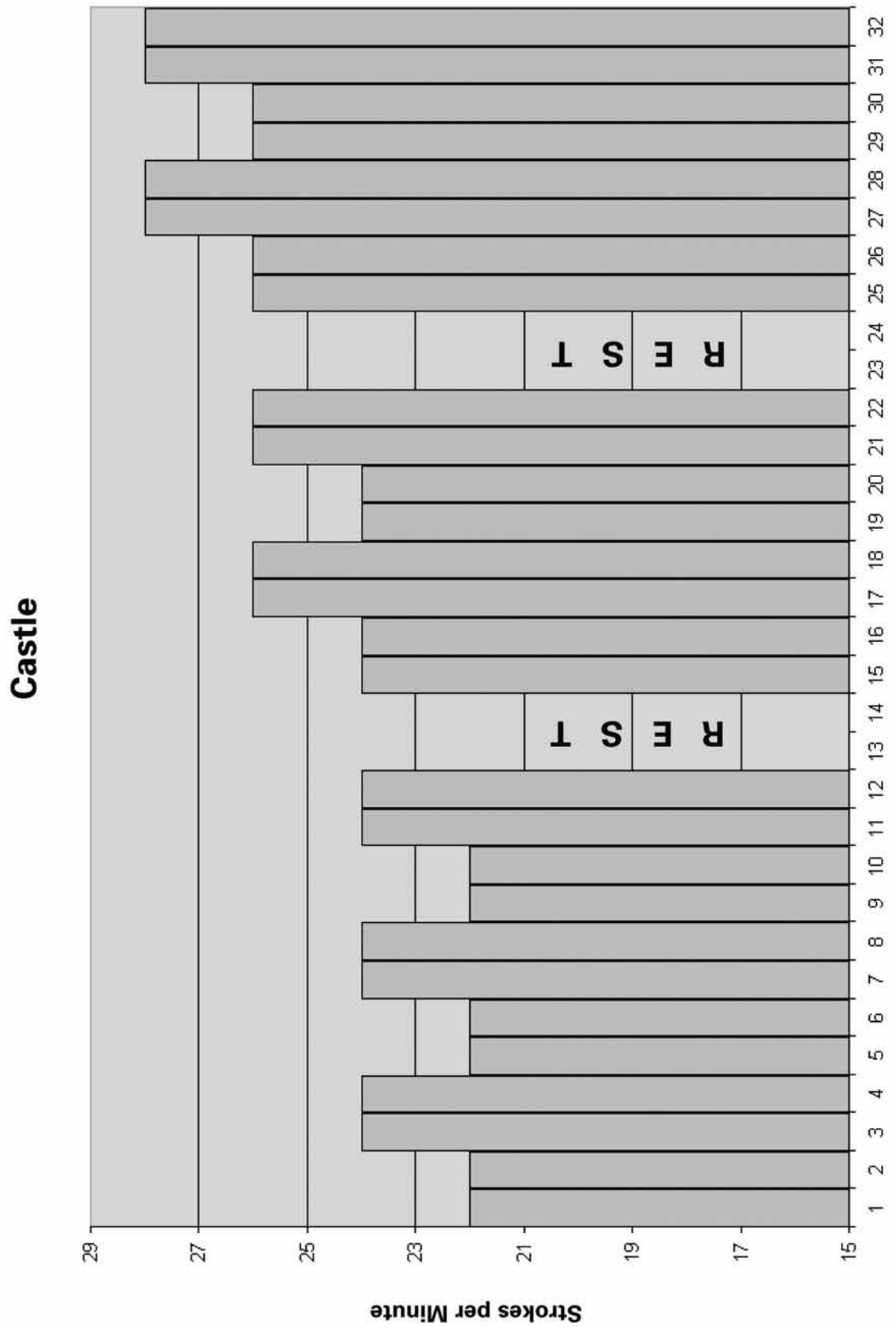
- Syncopated rowing - pupils are to row out of time with each other, they lose a life if they start rowing in time - this is harder than rowing in time.

Continuous and Interval Training - Teacher Notes.

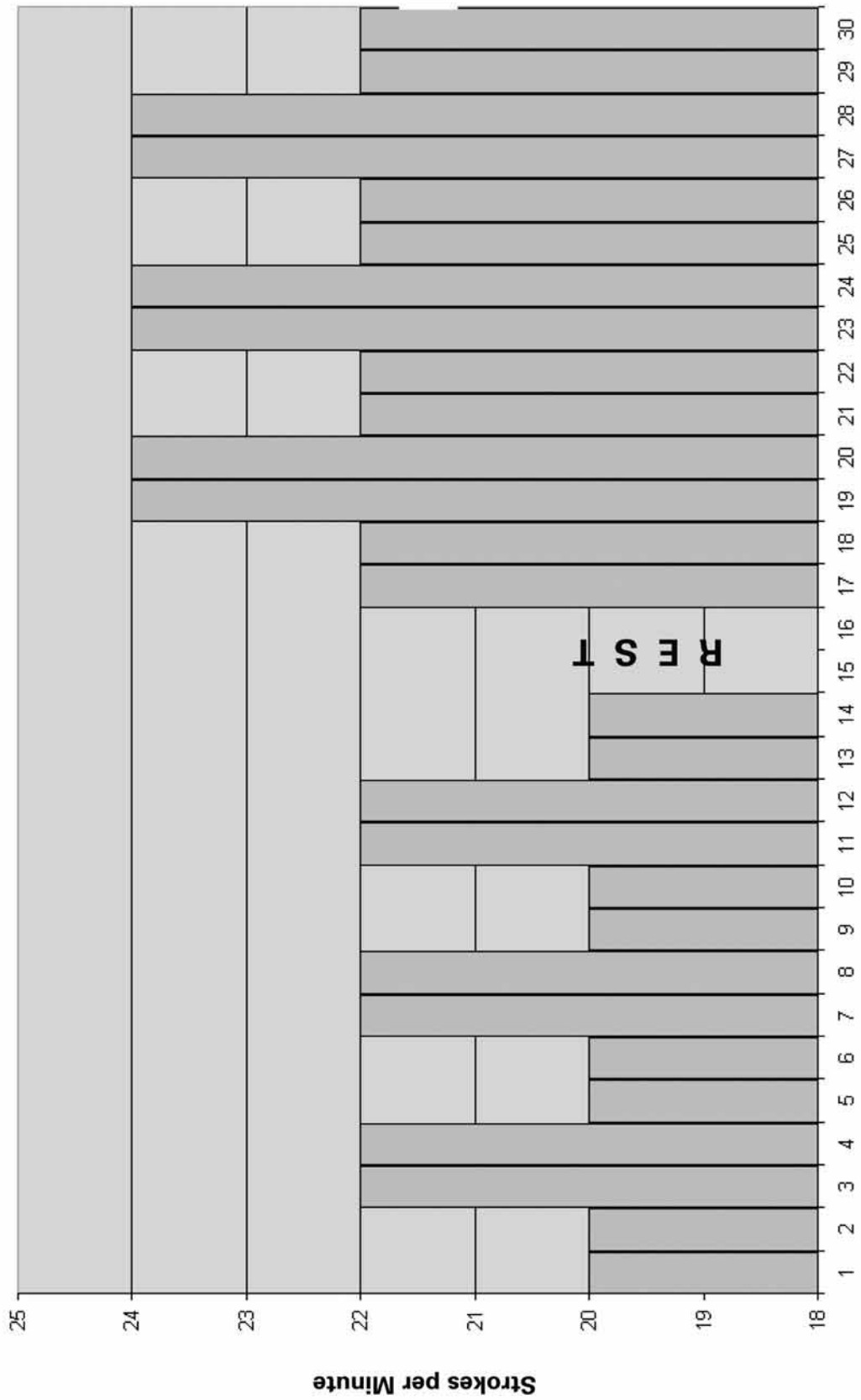
In preparation for GCSE PE pupils should be given the opportunity to develop their own fitness programme using the Indoor Rower. For this they will need to know the difference between a continuous training session - long periods of normally low intensity work, and interval sessions - shorter periods of work interspersed with periods of light work or total rest.

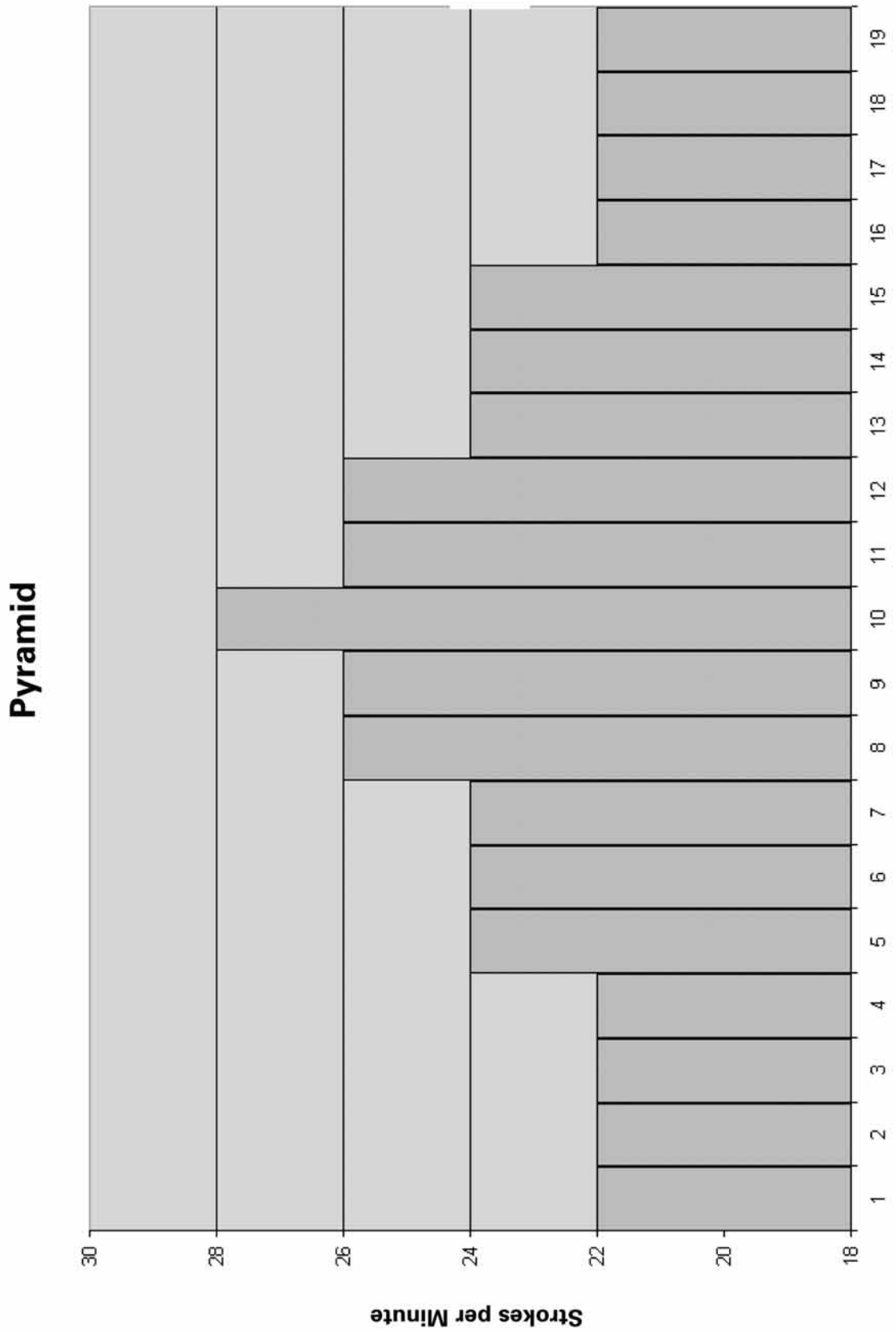
Continuous sessions are easy to develop, pick a time or distance and row until you have achieved it. Interval sessions are harder to construct, so there are some simple examples attached.

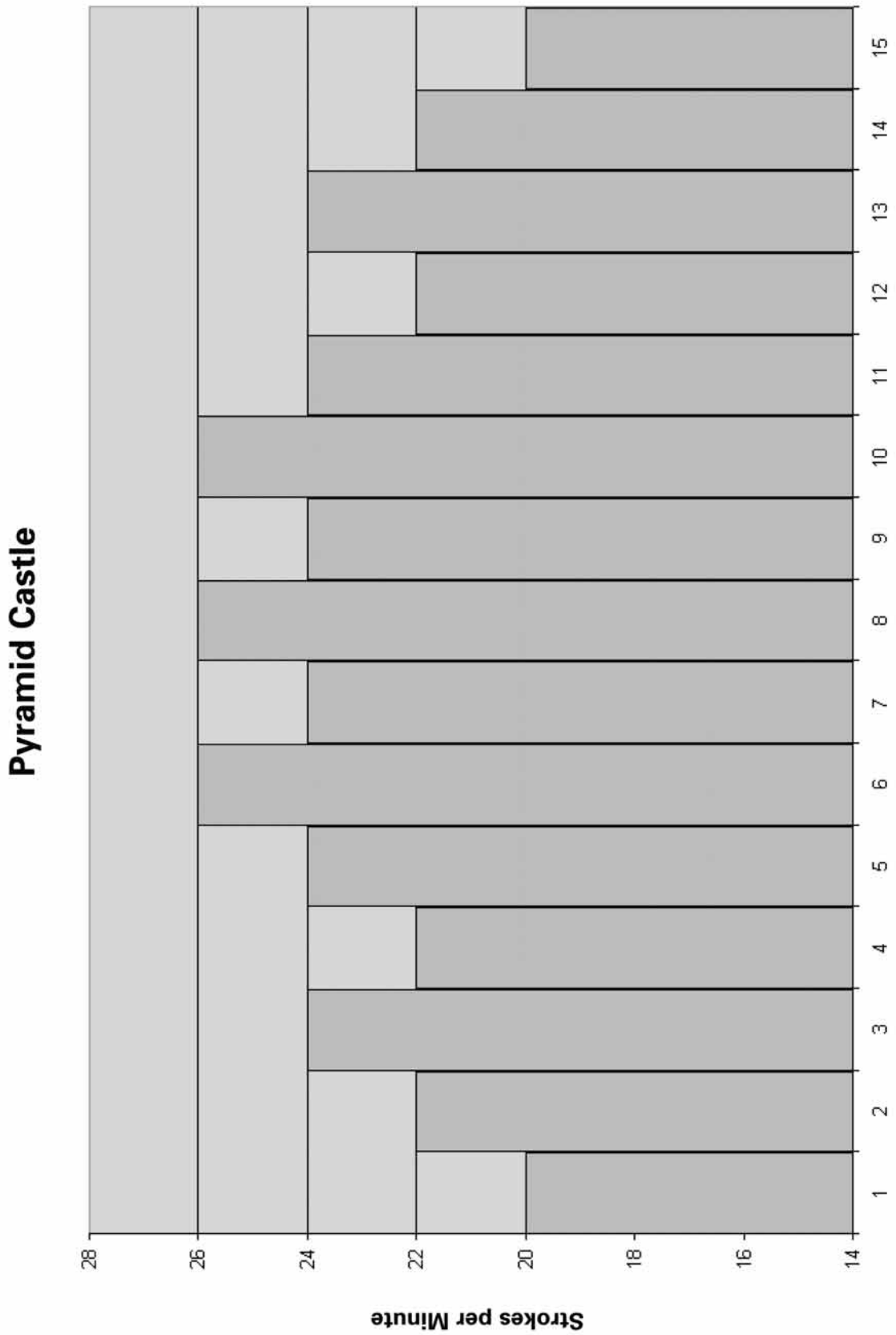
Note: The intervals are numbered but no time is given, select a time i.e. 30 secs / 1 min to use.



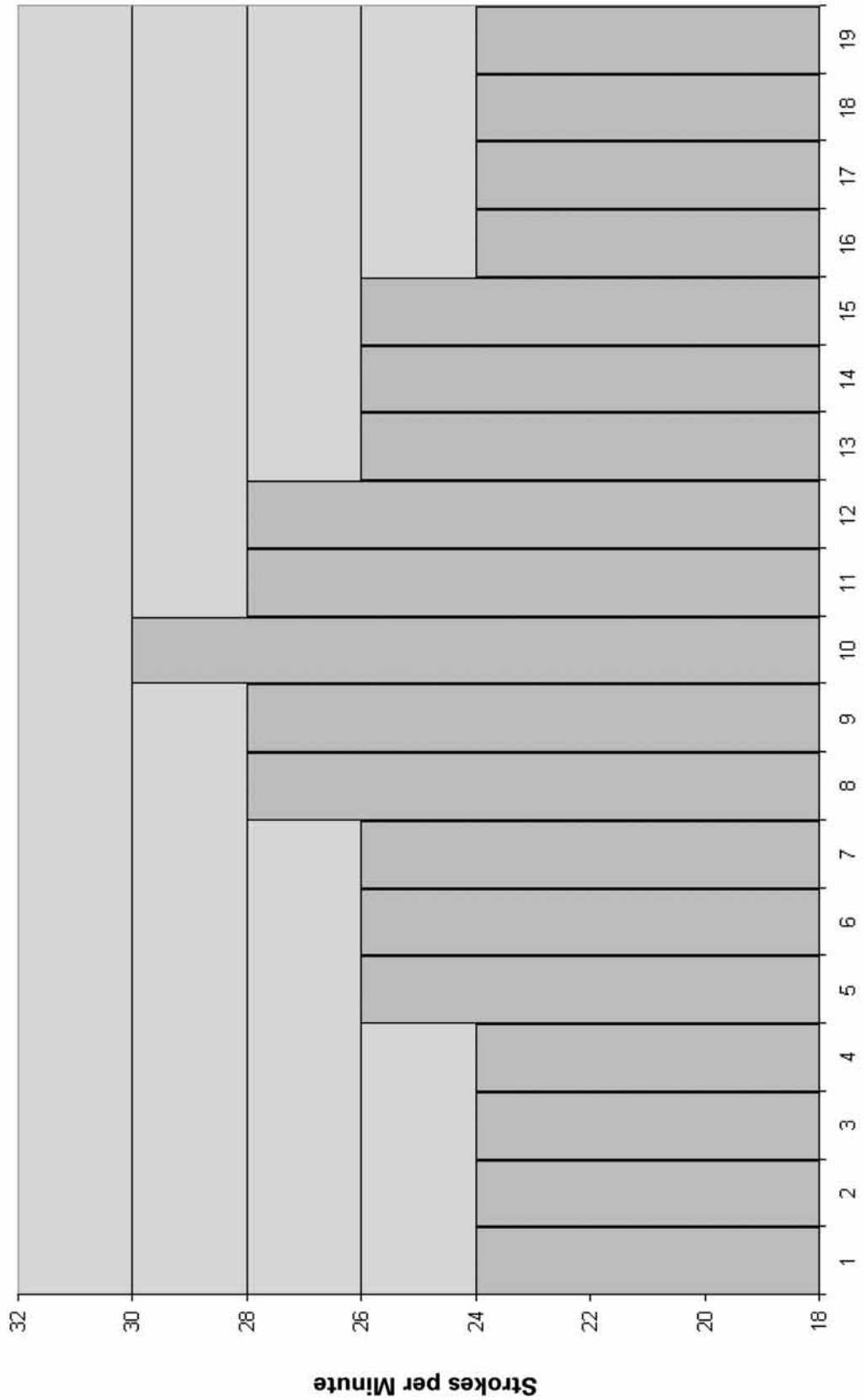
Castle 2

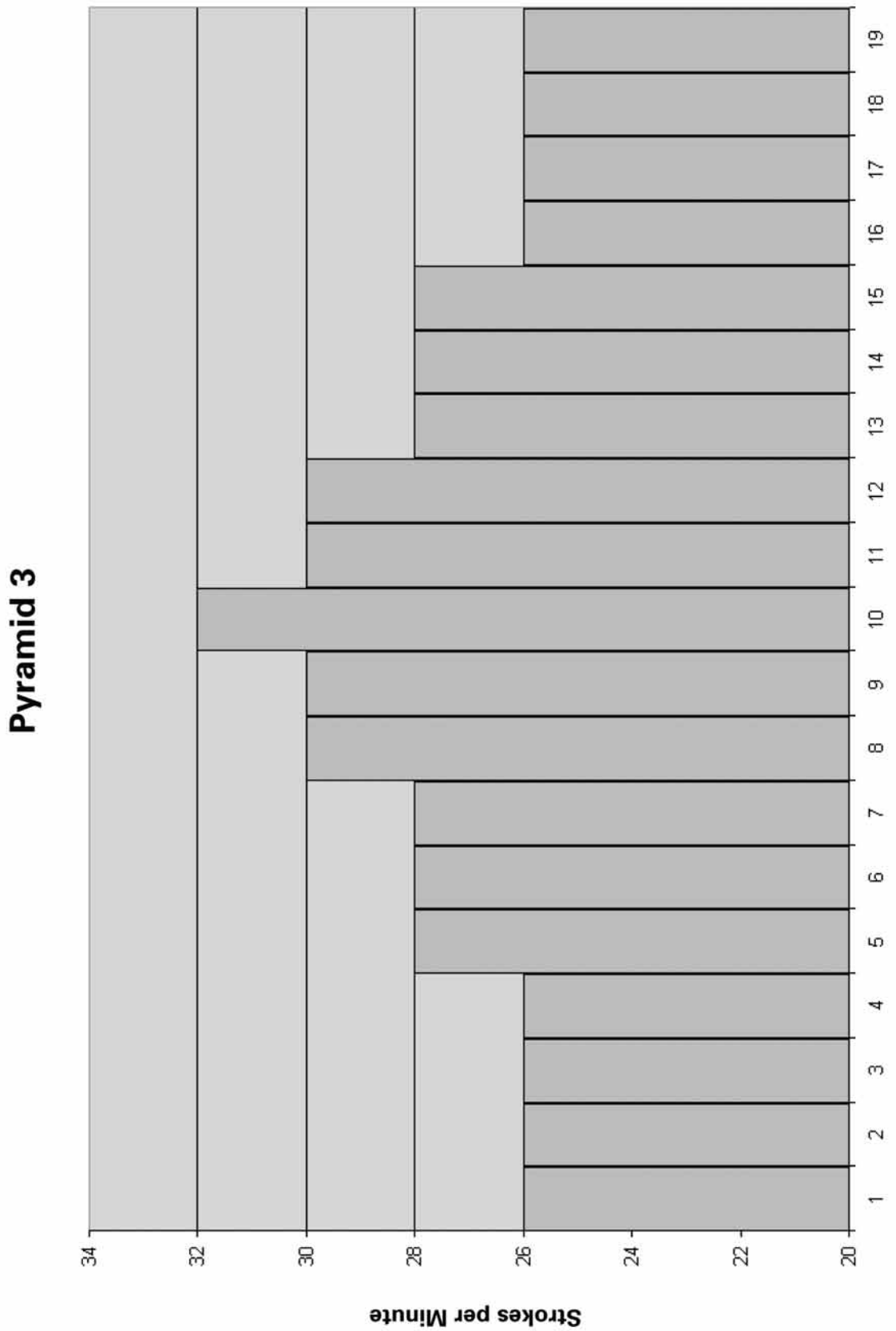


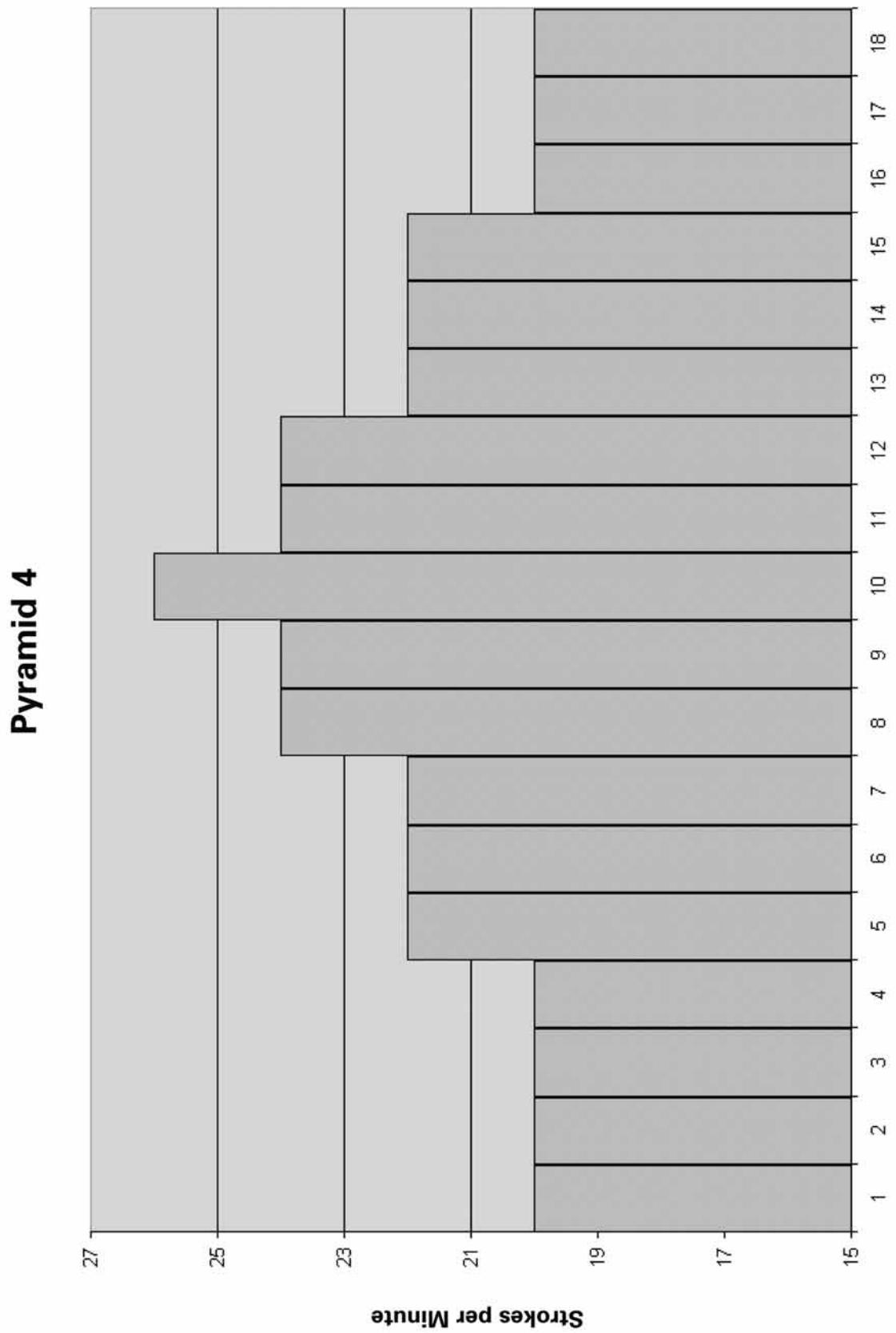




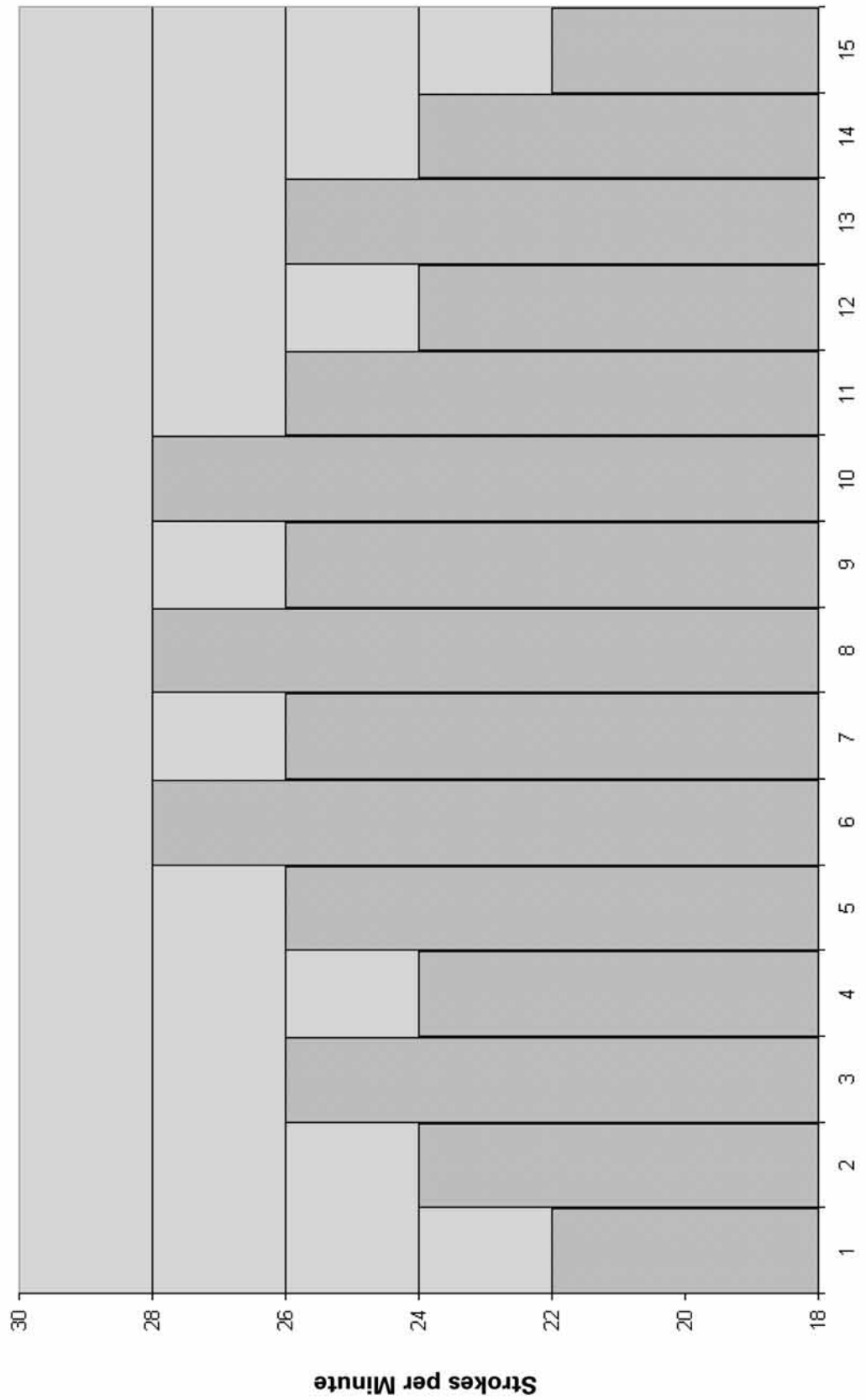
Pyramid 2



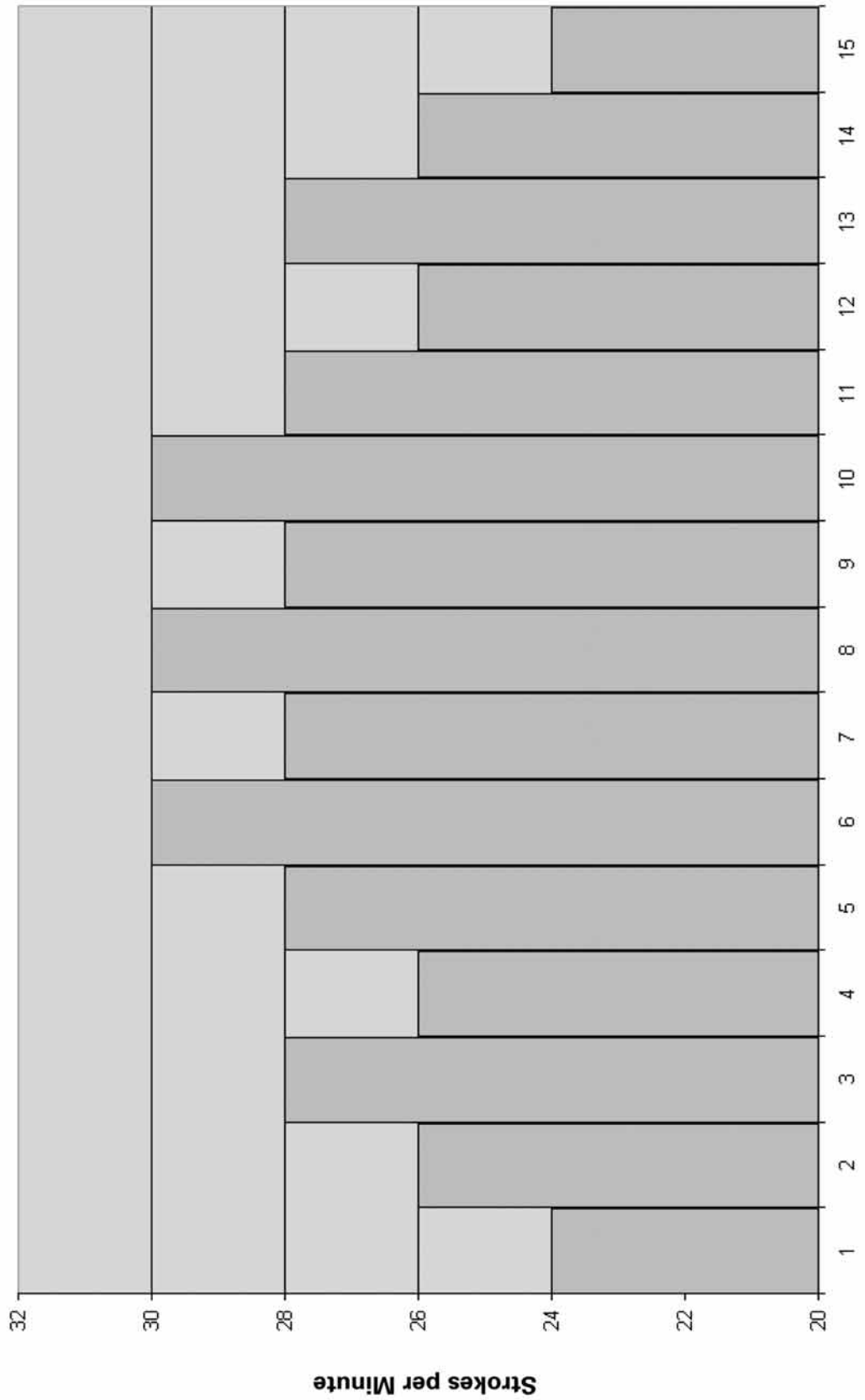




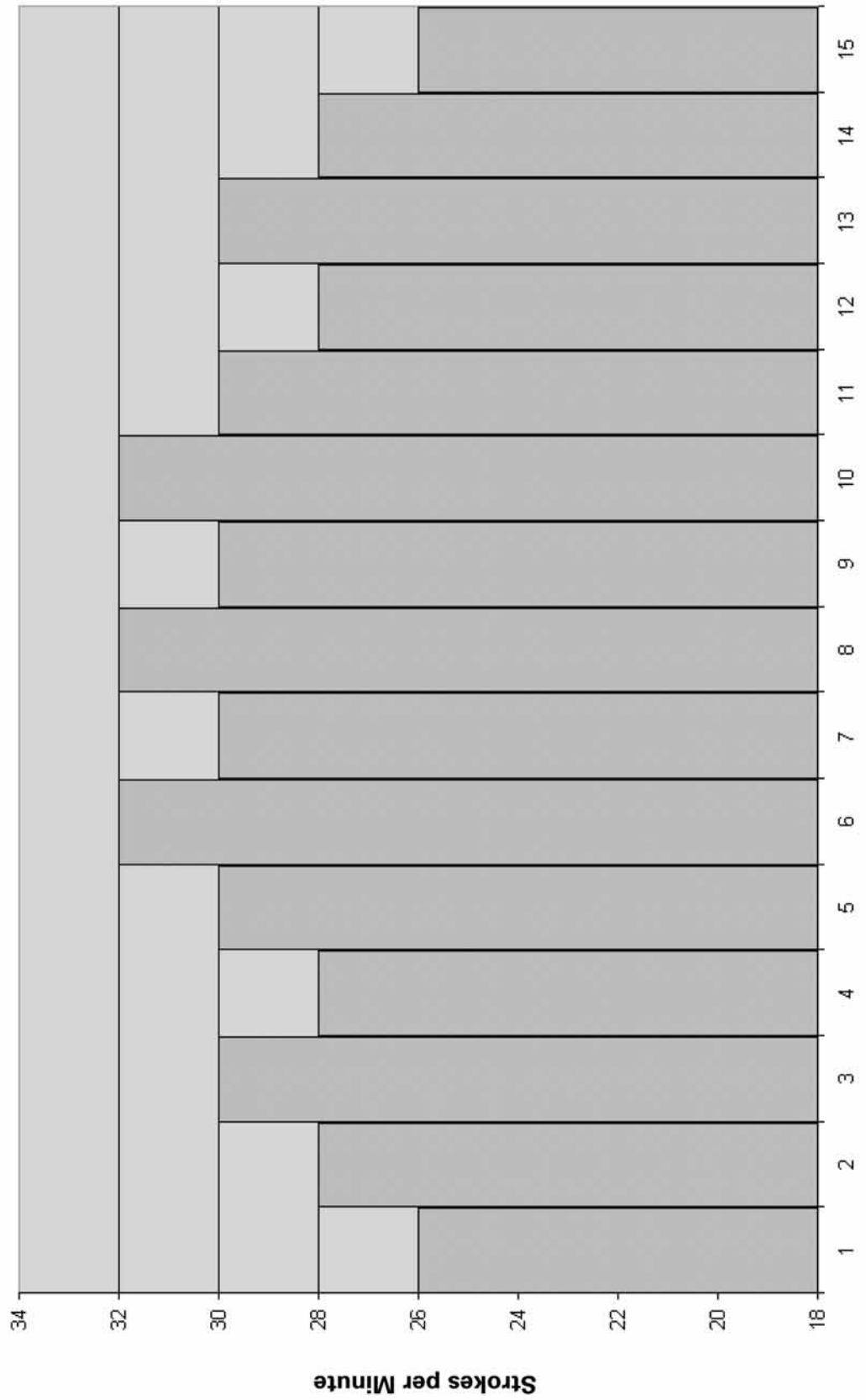
Pyramid Castle 2

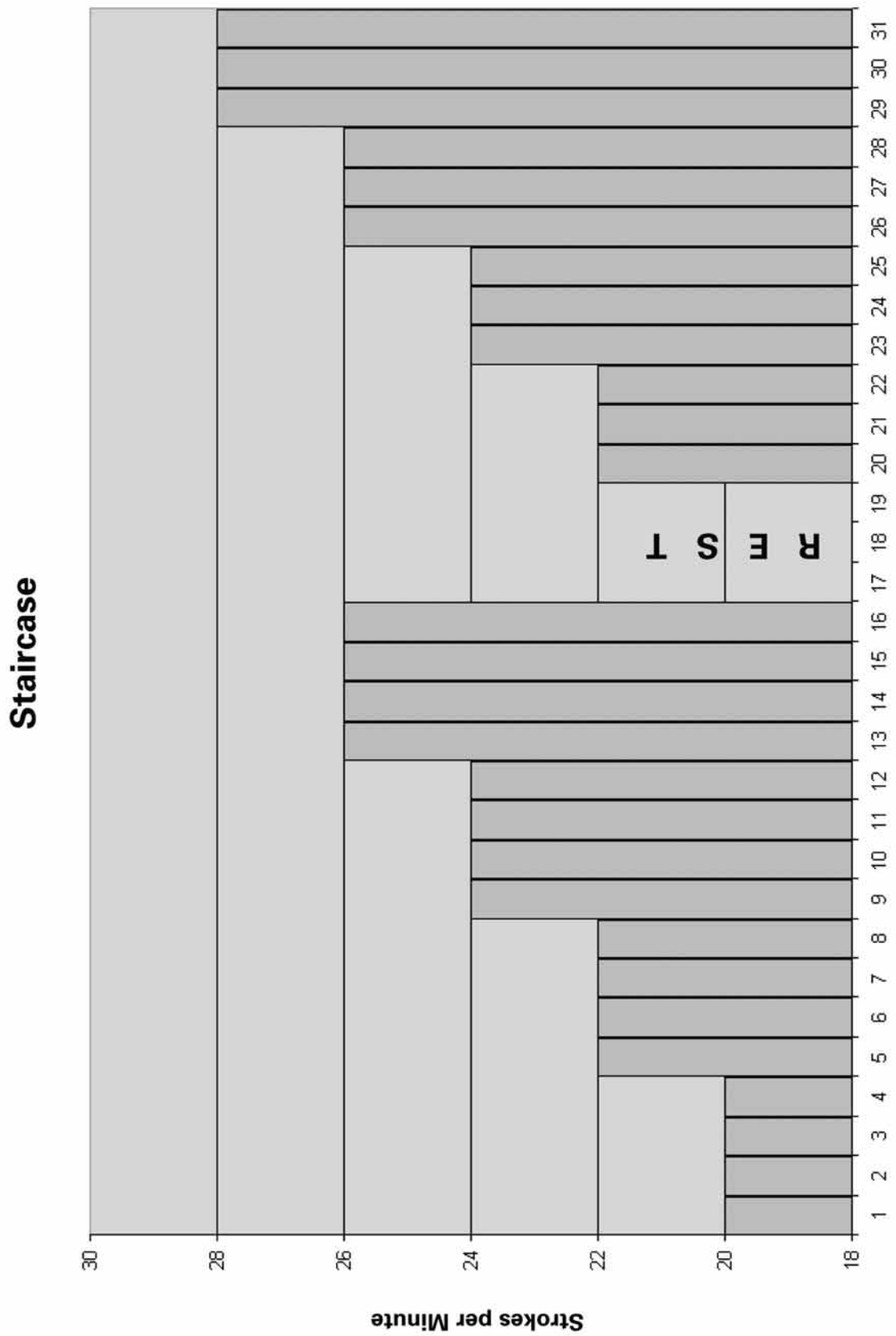


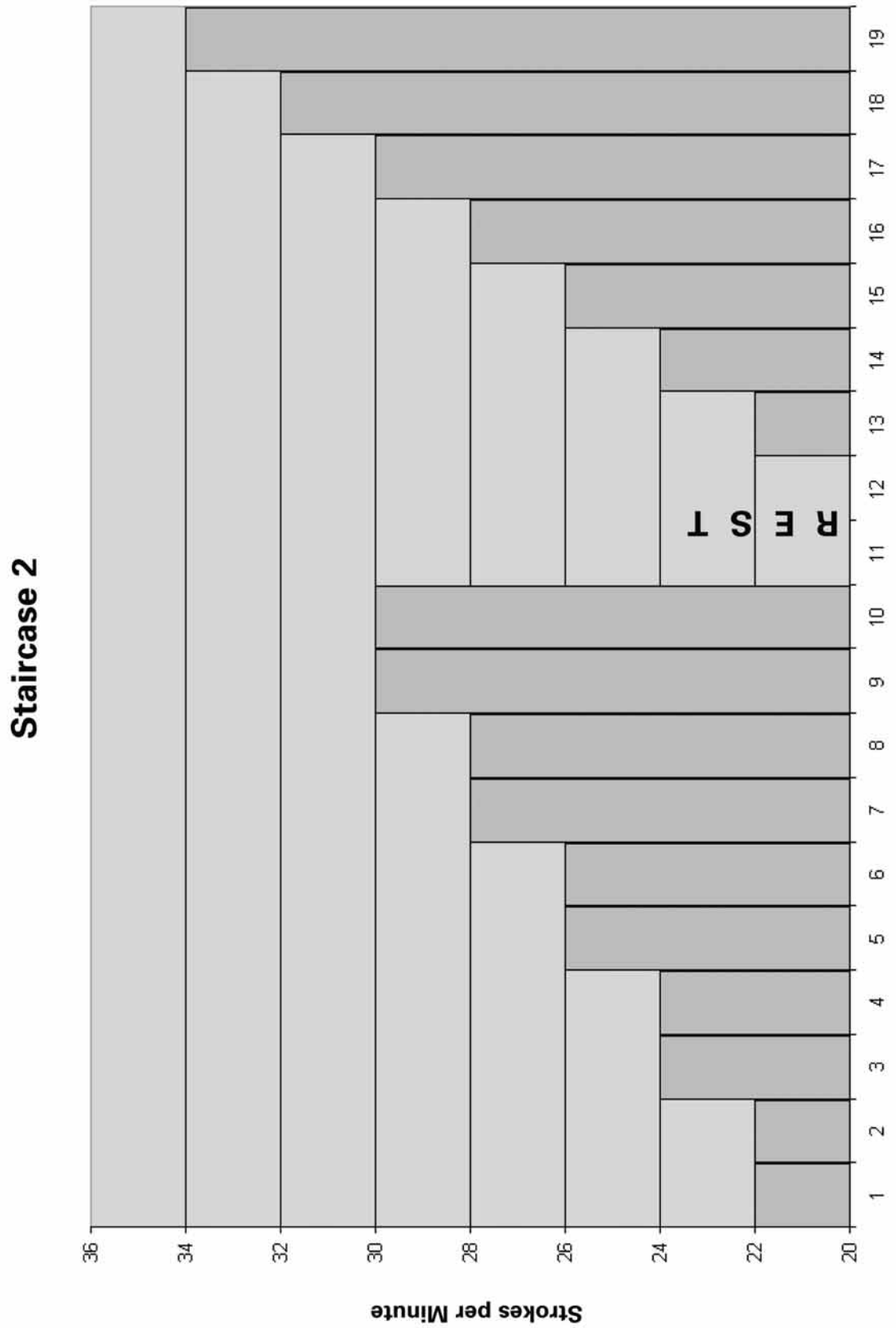
Pyramid Castle 3



Pyramid Castle 4





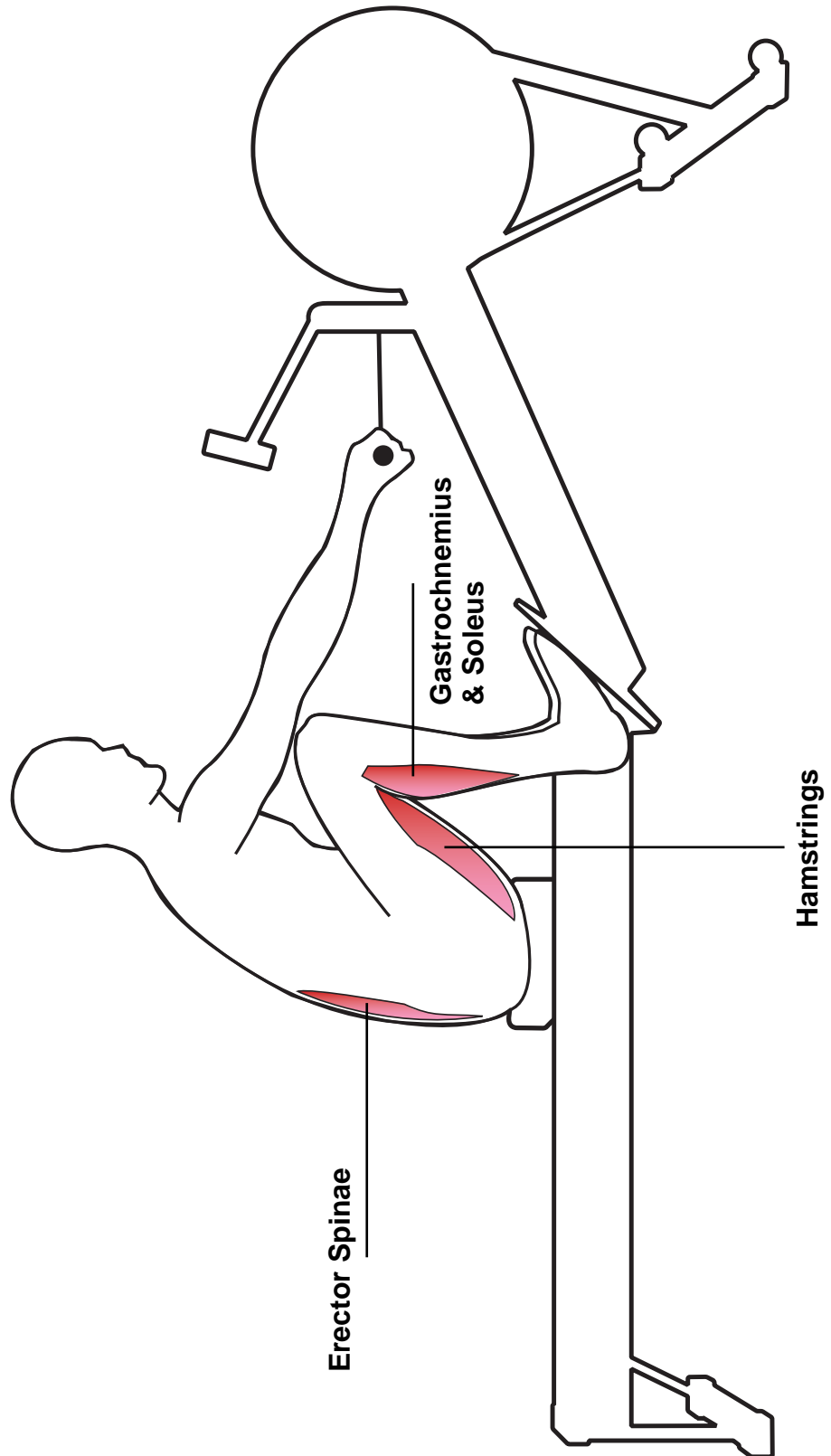


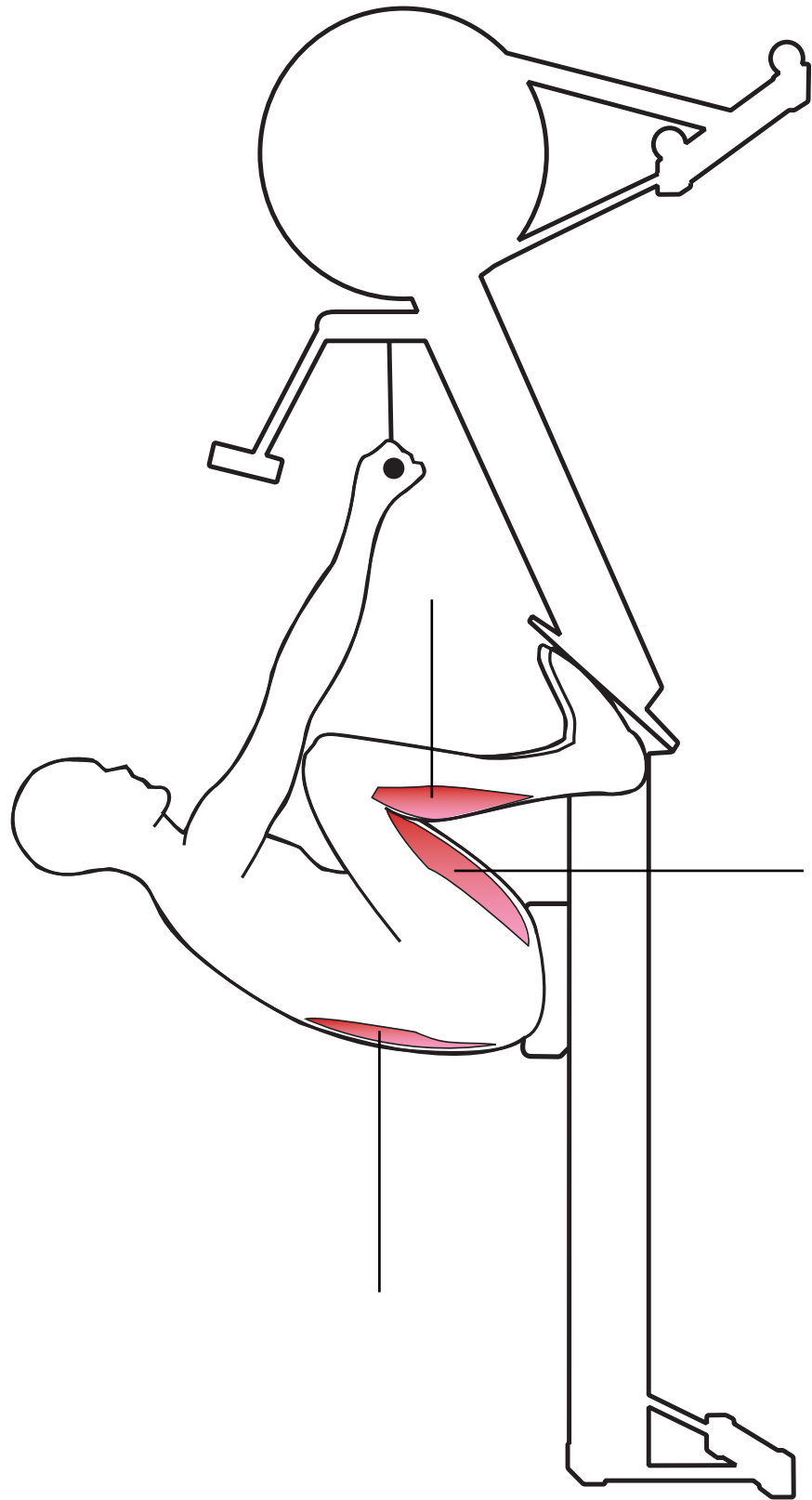
Three Star Intensity Method

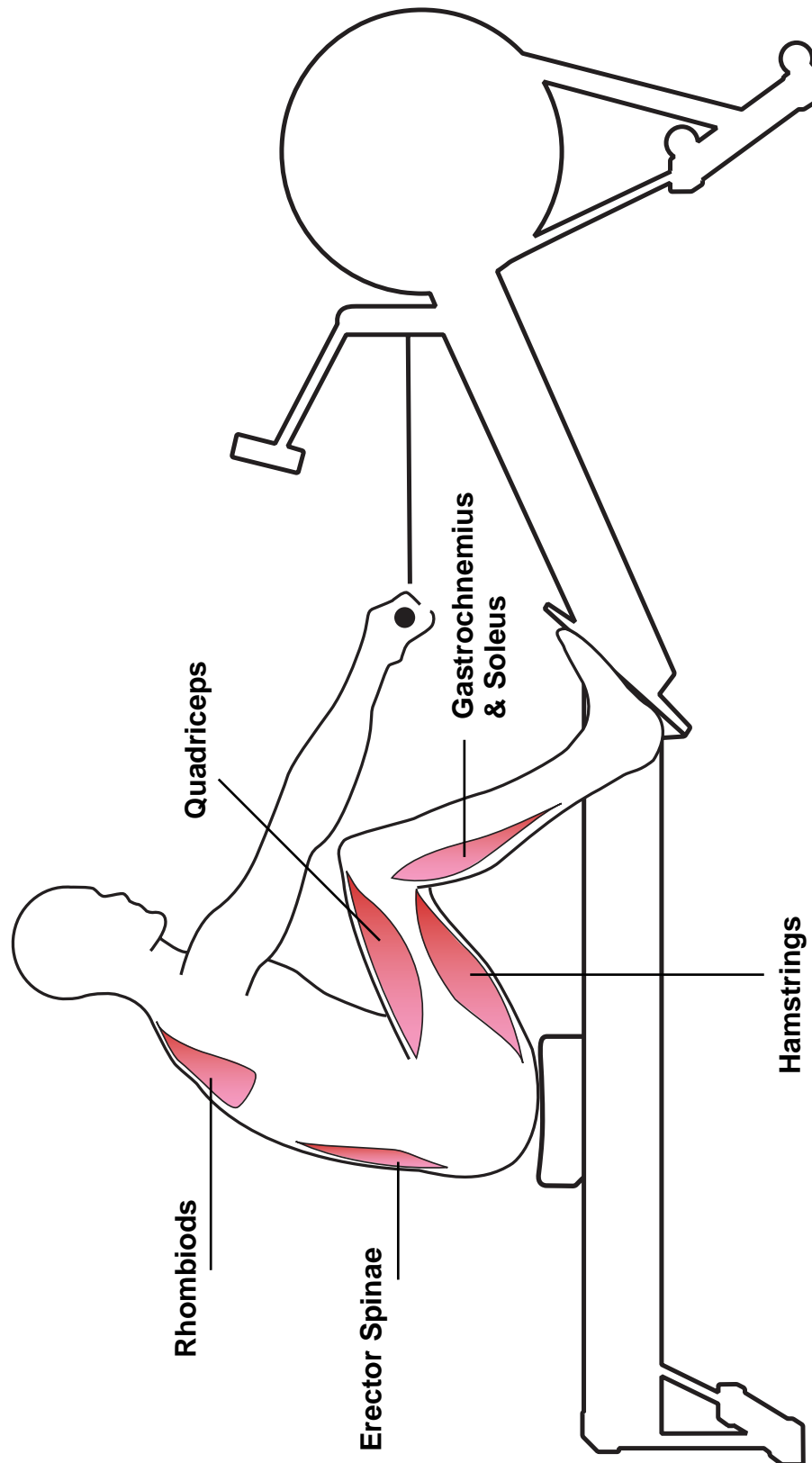
To help Year 9 and older pupils to create their own training programmes the Three Star Intensity Method gives three levels of intensity that correspond loosely to Utilisation Training Level 2 (UT2) training - low level cardiovascular training, Anaerobic Threshold (AT) and fully Anaerobic training.

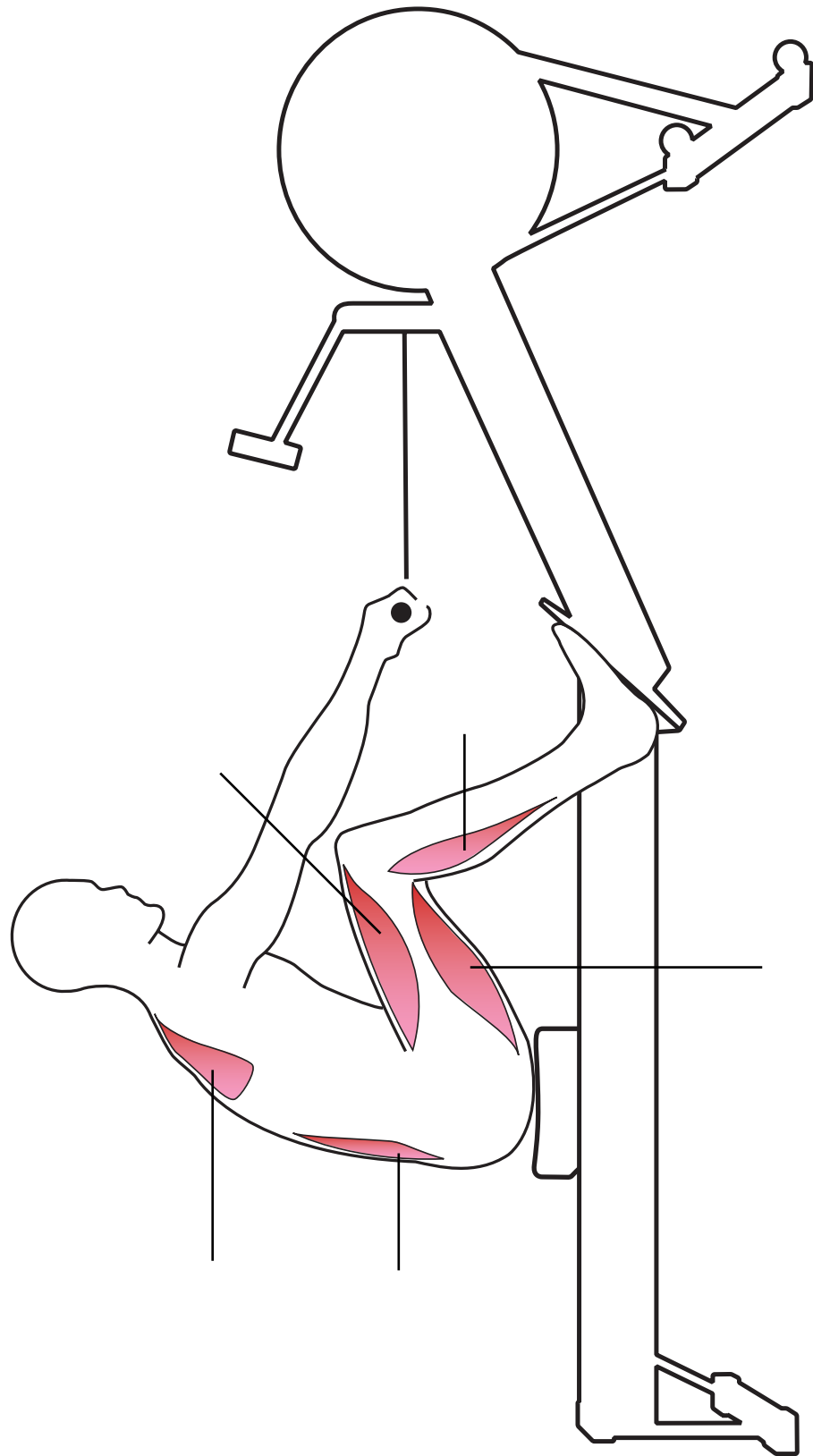
To establish these levels the pupils should be given two one minute peices of work to conduct. The first should be done whilst maintaining an easy conversation with another pupil. The average pace /500m should be recorded for this minute. Once this has been recorded they should then do a flat out one minute piece. The average pace /500m should be recorded. The result should then be recorded. The first test gives us the one star value, the second test gives the three star value, the two star value should be half way between the one star level and the three star level. These levels should be used to inform the pupils of how hard they should be working in any training sessions.

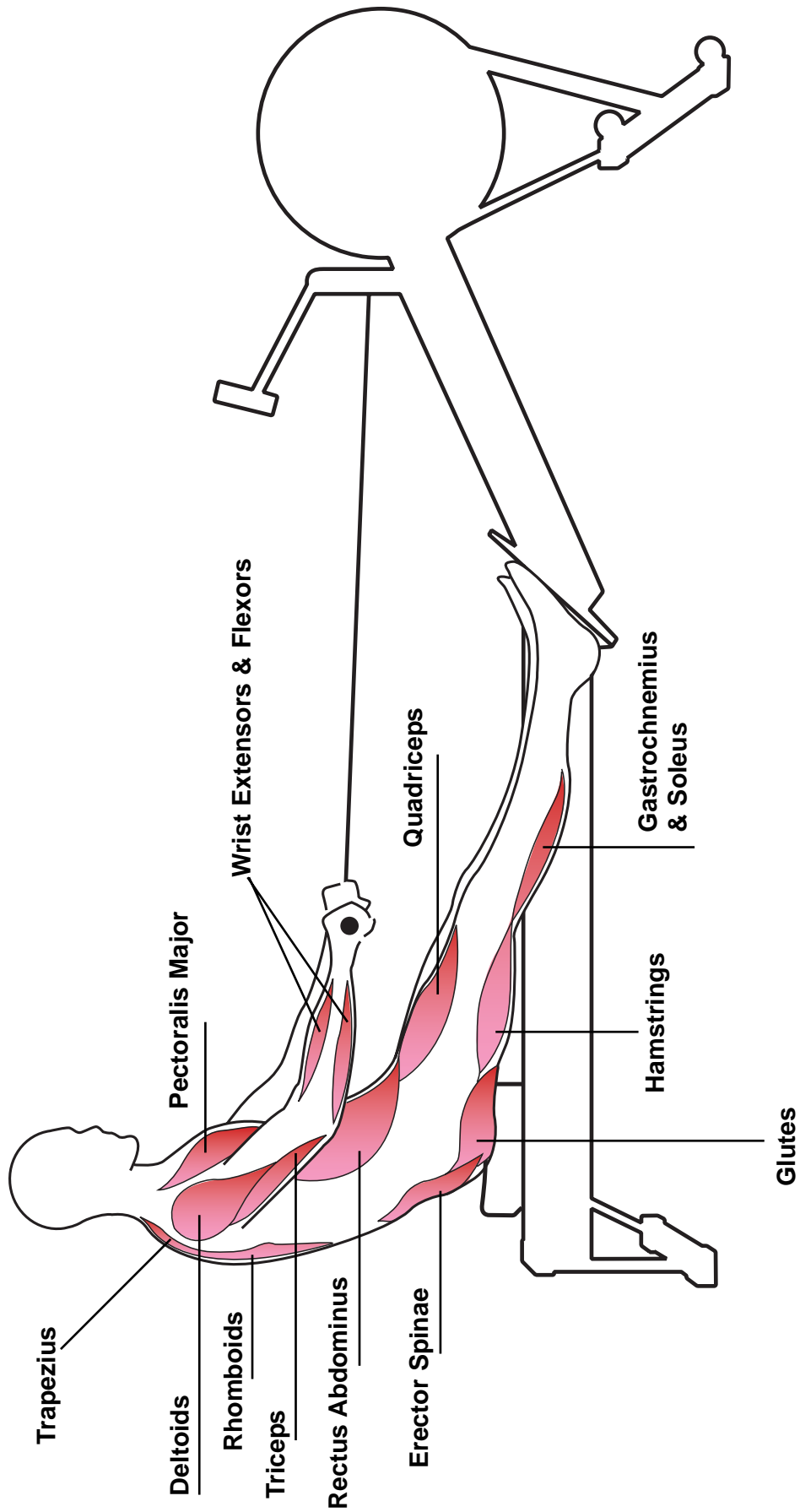
Note: Do not explain to the pupils what the values will be used for or they will cheat and the values will be too close together.

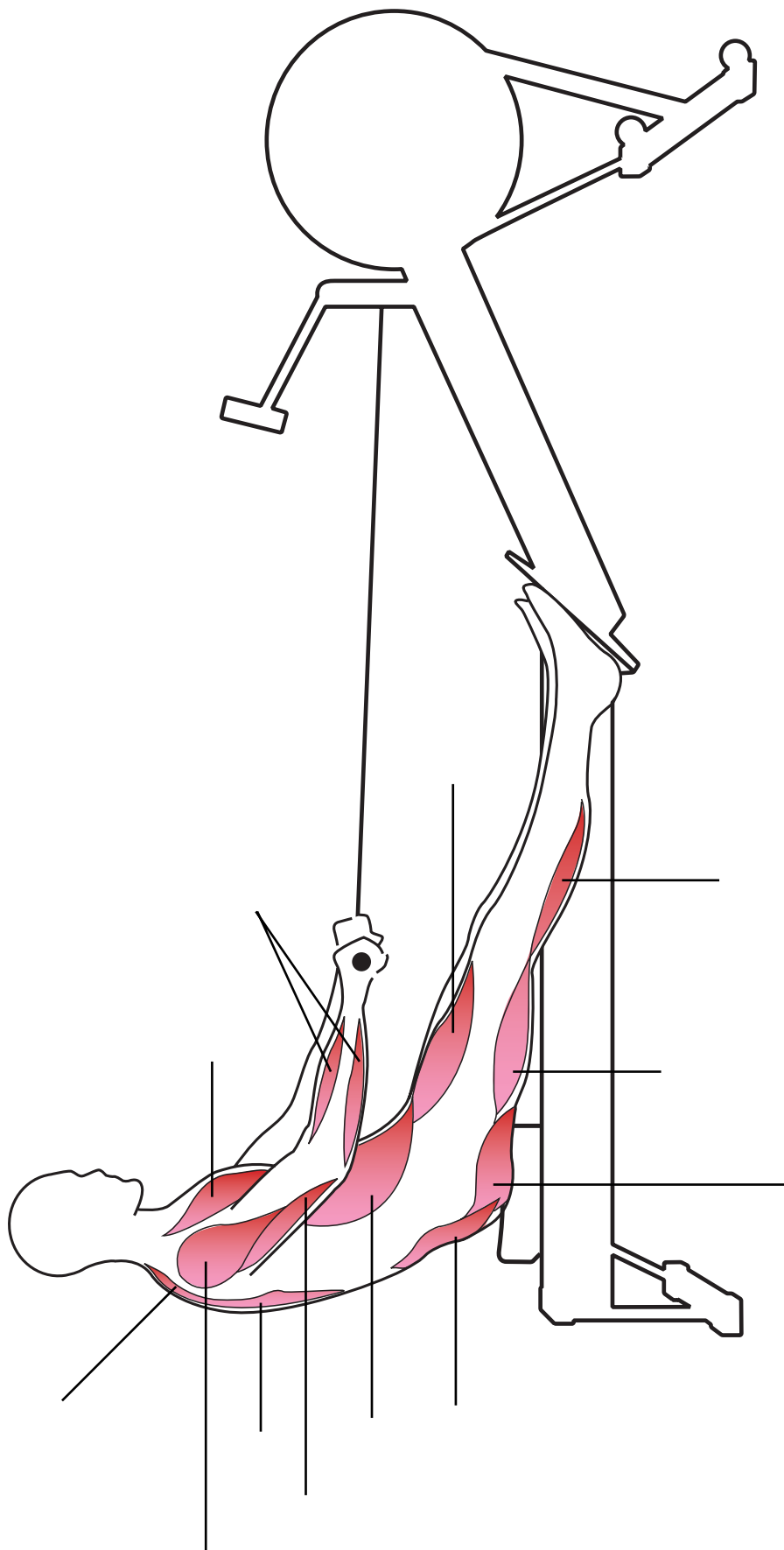


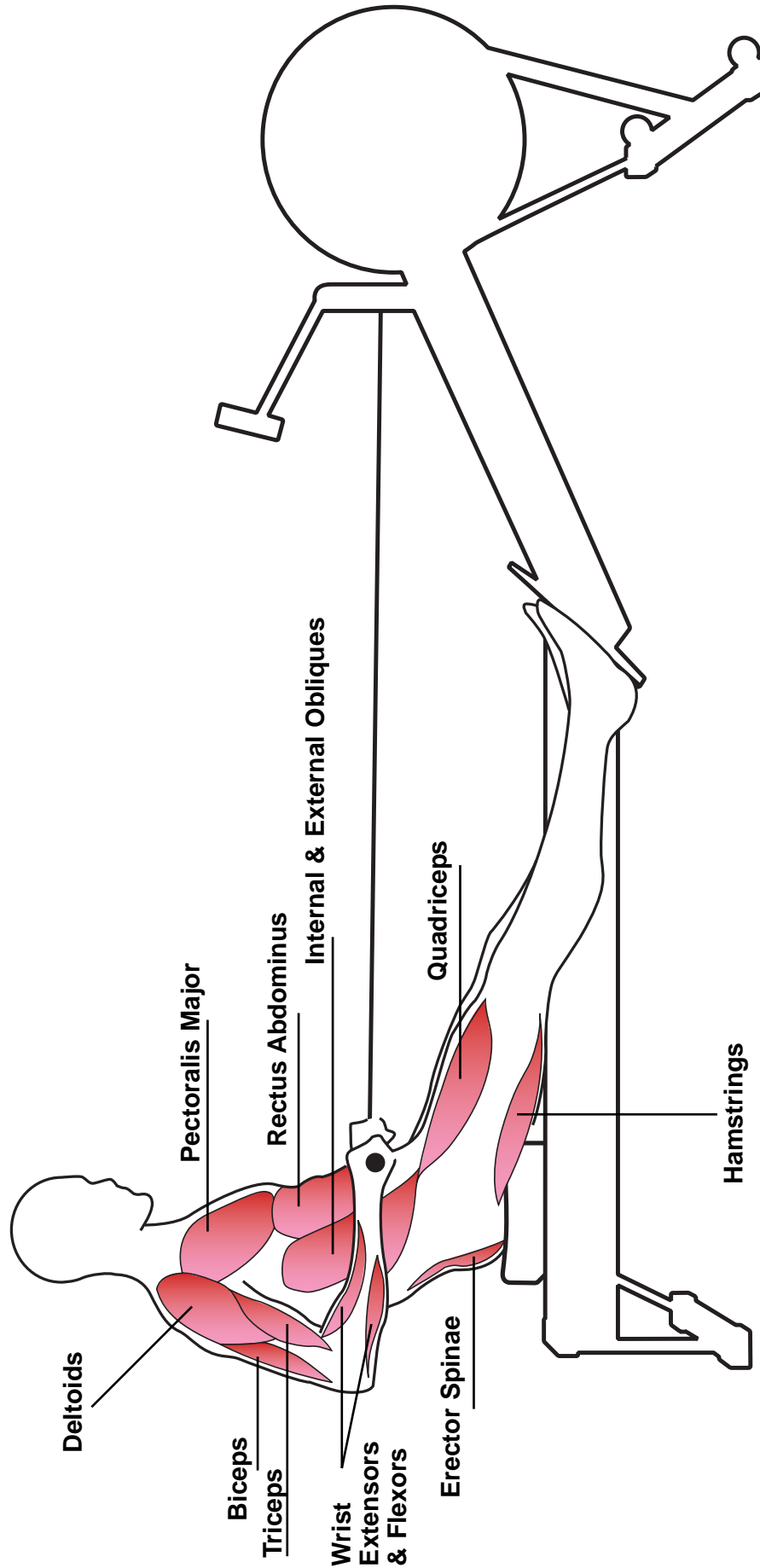


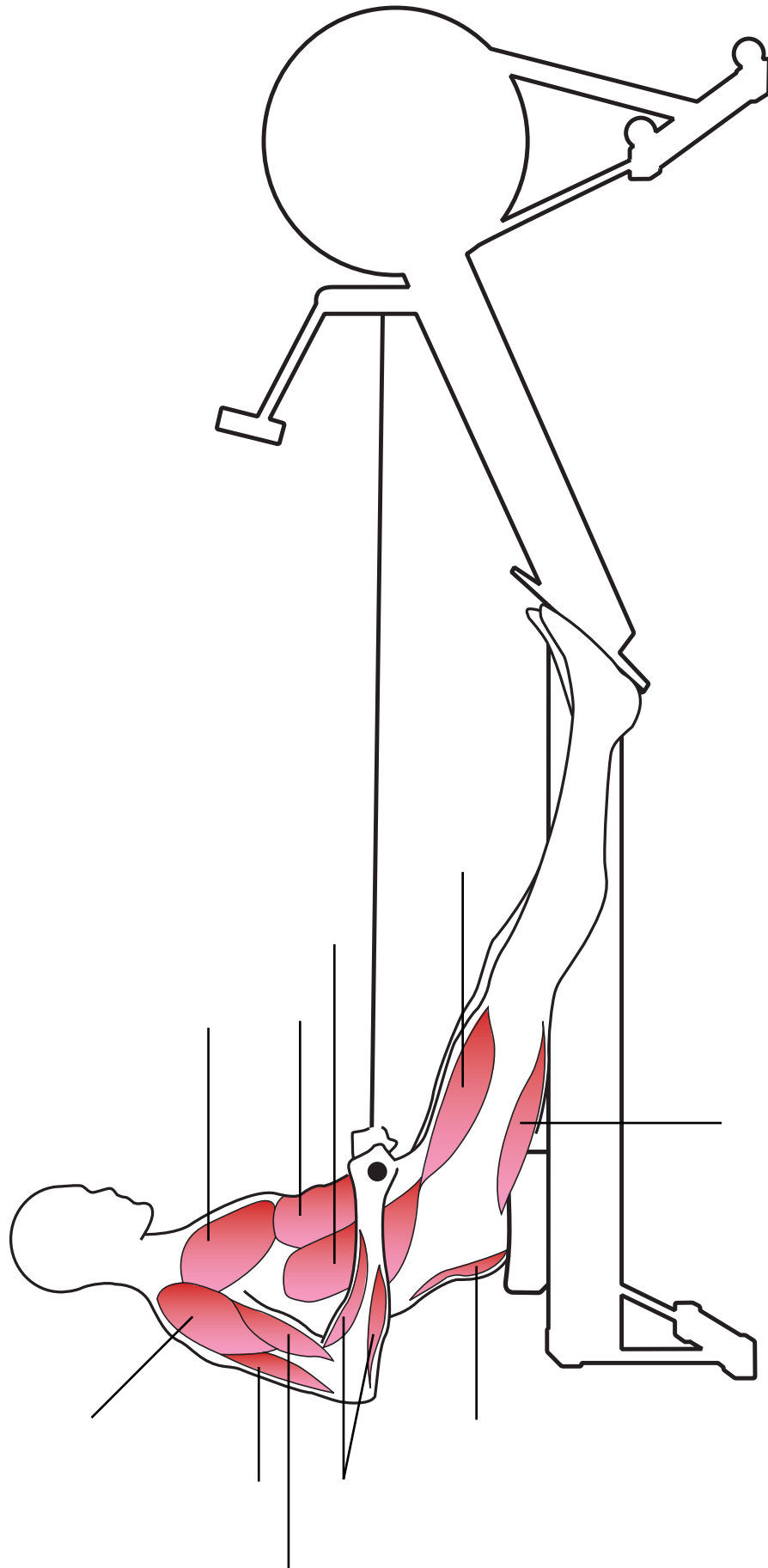












Resources:

- Minimum 5 Indoor Rowers.
- An Apple.
- Packet of Crisps.
- Chocolate Bar.

Objectives:

- Make pupils aware of the energy balance equation.
- Make pupils aware of how much energy expenditure they need to burn off a chocolate bar or a packet of crisps.
- Make pupils aware of the difference in numbers of calories between an apple, packet of crisps and a chocolate bar.
- Make pupils aware of the calorie function on the monitor.

Method:

- Explain the energy balance equation.
Energy from food intake = energy burned +/- energy stored.
- Explain that a medium apple has 53kCal.
- Allow pupils to choose what they would like to eat, an apple, a packet of crisps or a chocolate bar then let them find out the number of calories in each and try to exercise, individually or in a group using the calories burned display until they have burned off the calories in their chosen snack.

Teaching points:

- The Chocolate group will take a long time to burn off the calories, so it is best to make them a team, but remind them that they are burning off only one part of the chocolate bar each.
- The time it takes to exercise away a chocolate bar or a packet of crisps comes as a shock to most pupils so it is often best to leave the review of the session for until the next lesson.

Organisation:

- Pupils should be divided into groups according to the type of snack that they want.

Progression:

- Work out from the calories burned in a session how much extra chocolate each pupil can eat.

- Section 7: Awards7.1**
 - i. Concept 2 Distance Awards7.2
 - ii. ARA Dry Skills 17.3
 - iii. ARA Dry Skills 27.6
 - iv. ARA Dry Skills 37.9

Concept 2 Distance Awards

Junior (u13)	10,000m	25,000m	50,000m	100,000m
Youth (13-18)	100,000m	250,000m	500,000m	1,000,000m
Senior (18+)	1,000,000m	5,000,000m	10,000,000m	15,000,000m

To apply for a Concept 2 Distance Award the individual must fill in a training log, the first and last page, signed by either a gym instructor, coach or teacher should then be sent in to Concept 2 Ltd with the person's T-shirt size, name and address and a T-shirt and certificate will be dispatched to them as soon as possible. Individuals can also enter the Concept 2 World Ranking online at www.concept2.com/sranking03/log_start.asp





AMATEUR ROWING ASSOCIATION

Dry Start (DSK 1)



Dry Skills 1 – The Basic Stroke

There are three parts to this award: terminology, safety and practical skills. You must make sure that participants are able to achieve, explain or demonstrate the following tasks:

1 Terminology

Indoor Rowing Machine

Identify and name correctly the following 11 parts:

flywheel, fan cage, damper lever, monitor, monorail, seat, handle, handle hook, chain, chain links and foot rests.

2 Safety

Participants should understand and demonstrate the following safety procedures.

Pre-workout:

- Check the handle, seat and monorail are clean and free from sweat and dust.
- Adjust damper lever to an appropriate setting.
- Sit slightly towards the back of the seat.
- Adjust the feet in the footrests and fasten the straps.

During the workout:

- Always row with both hands.
- Always keep hold of the handle.
- Avoid twisting the chain.

Post-workout:

- Replace handle against fan cage.
- Wipe down seat, handle, monitor and monorail.



Indoor Rowing Machine



Coach's Top Tip

Indoor Rowing should be fun

3 Practical Skills

Make sure that participants can demonstrate satisfactorily the Basic stroke Sequence. This is best learned and demonstrated in two stages.

Stage 1

The arm and body movement should demonstrate the:

- finish position
- correct arm movement (from the finish)
- correct body movement.

Stage 2

The recovery, beginning and leg drive movement should demonstrate the:

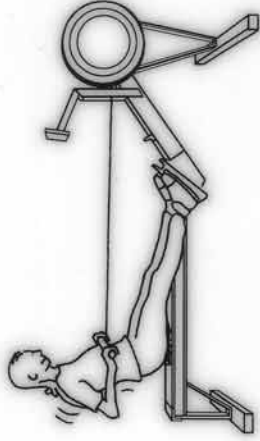
- recovery
- beginning
- leg drive.

DRY SKILLS 1

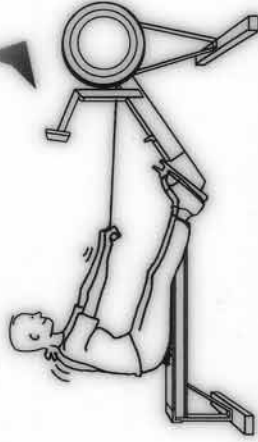
The Basic Stroke

- Identify and name the parts of the machine
- Understand and use correctly the main rowing terms in the stroke cycle
- Understand and demonstrate the safety features and procedures
- Demonstrate satisfactorily the basic stroke sequence with the elements and terms used

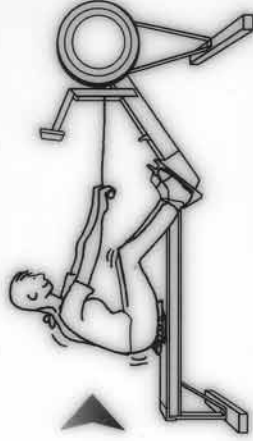
Stage 1



1. The Finish: Lean back slightly, legs flat, handle drawn to the body. Forearms horizontal

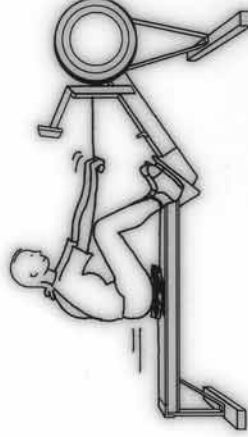


2. Arms extend, body rocks forward. The arms are relaxed and extend fully. The body rocks forward from the hips

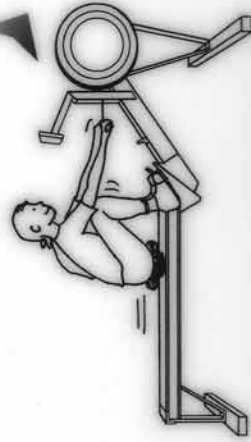


3. The slide: AFTER the arms have fully extended and the body rocked forward, slide forward maintaining arm and body position

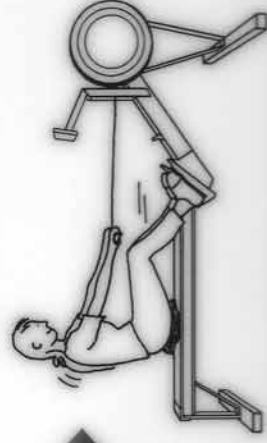
Stage 2



1. The Recovery: Hands, body then slide



2. Full Slide - the beginning. Shins vertical with body pressed up to the legs. The arms are straight and relaxed. The position should feel comfortable!



3. The start of the drive. The legs push down and the body begins to lean back



AMATEUR ROWING ASSOCIATION Day Start (DSK 2)



Day Skills 2

Understanding the Equipment

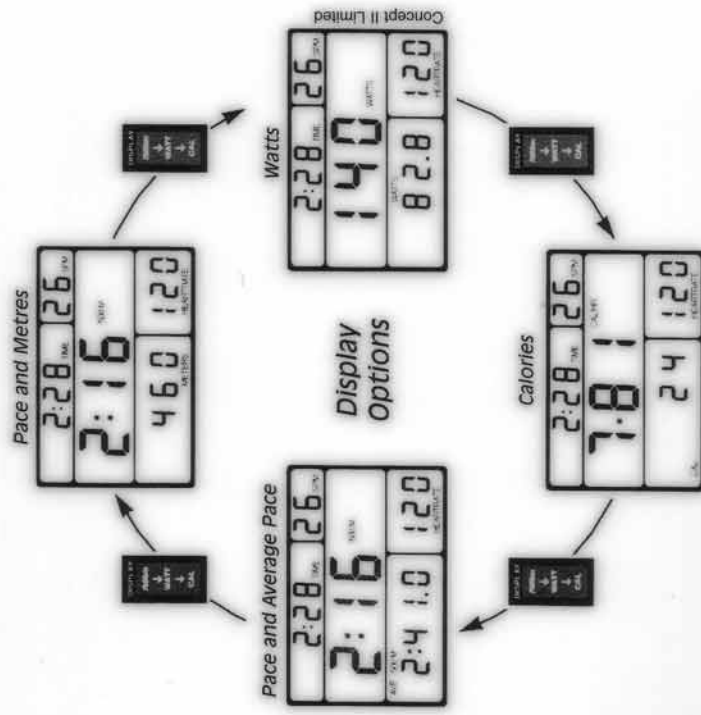
There are three parts to this award: monitor functions, basic maintenance and damper setting. Participants must be able to achieve, explain or demonstrate the following tasks:

1 Monitor functions

Participants must be able to demonstrate the following:

- Setting time, distance or rest.
- An understanding of the information displayed in automatic operation: elapsed time, stroke rate (spm), output for each stroke, total output.
- How to change displays to show pace/watts/calories.

Monitor functions and display options



Monitor



Enlarged view of the function button on the monitor

2 Basic maintenance

Participants should be able to:

- clean monorail
- check for dust inside flywheel housing with a torch
- clean and lightly oil the chain
- check the chain handle connection for wear.

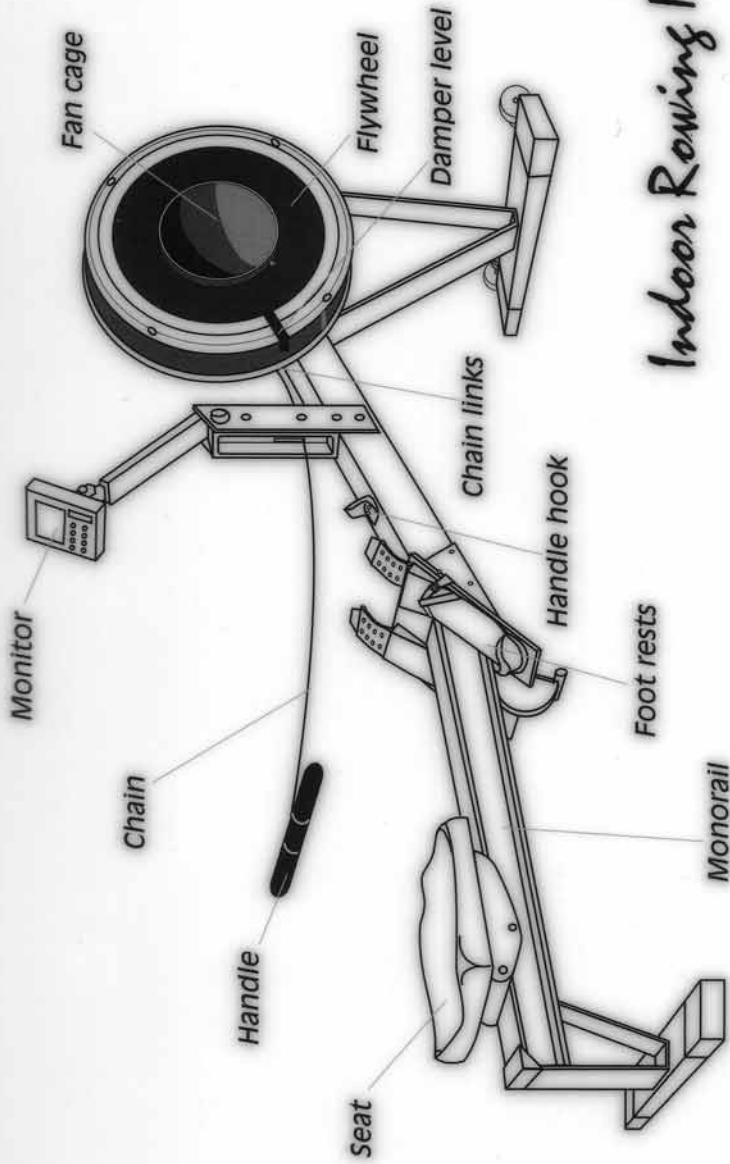
3 Damper settings

Make sure participants understand the feel of different damper settings and can select a level to suit their individual needs.

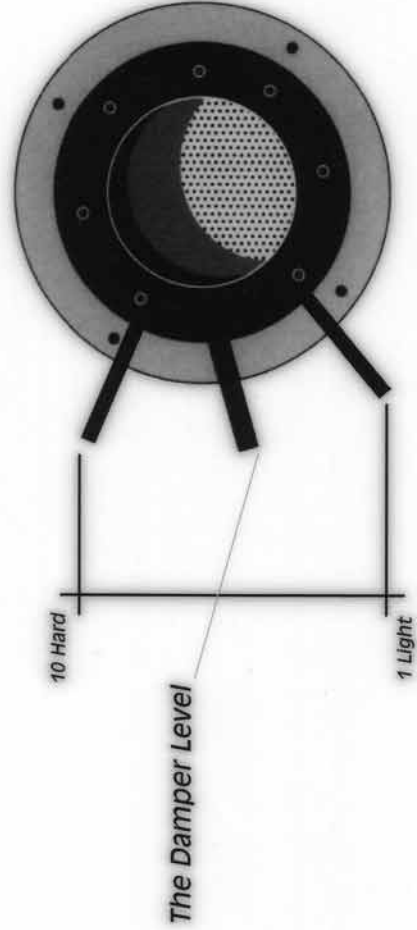
DRY SKILLS 2

Understanding the Equipment (Check-list)

- Understand and demonstrate the monitor functions and displays, basic maintenance and damper settings.



Indoor Rowing Machine



The Fan Cage and Damper Settings

Warming up

Warm-ups are fun activities and should be done before a rowing workout. They help to:

- avoid injury
- improve performance
- increase flexibility.

Warm-ups should:

- start with some activities, approximately five minutes, to increase the heart-rate (eg run, skip, *tig*)
- be followed by some stretches (see pictures and notes)
- be followed by some higher intensity activity that is more related to rowing skills (this may be done in the boat).

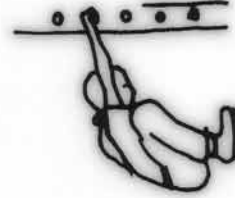
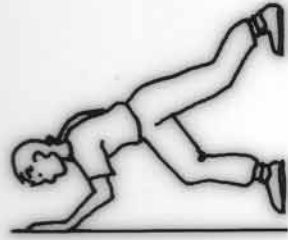
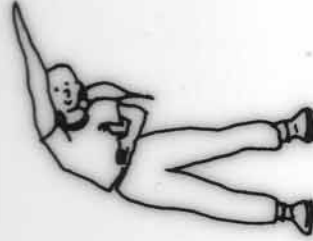
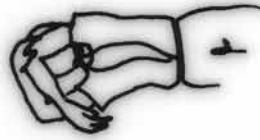
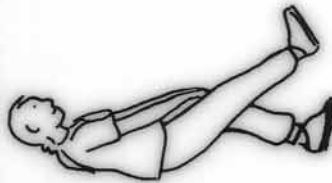
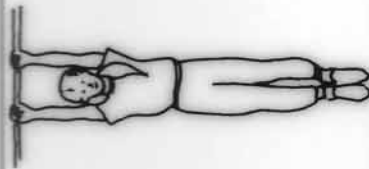
Stretching Notes

Dos:

- Stretch systematically (eg from head to feet).
- Demonstrate each stretch to participants.
- Hold stretches to a comfortable point for approximately ten seconds.
NB To increase flexibility hold for approximately 30 seconds.
- Remember to breathe while holding the stretch.
- Relax between each stretch.

Don'ts:

- Do not stretch when cold.
- Do not bounce stretches or take them to a point that is uncomfortable.
- Do not continue if there is pain.
- Do not be afraid to ask for help.



Coach's Top Tip

NB After each session participants should cool-down. This helps to prevent stiffness and improve recovery. Some gentle exercise and stretching for approximately five minutes is all they need.

Section 8- Fulfilling your ICT requirements with the Concept 2

Section 8: Fulfilling your ICT Requirements with the Indoor Rower8.1

Section 8 - Fulfilling your ICT requirements with the Concept 2

The use of the Concept 2 hardware and software, including the website can be used to enable learning about the following areas of the ICT curriculum. This provides an ideal opportunity for the PE Department to teach some of the important Health Related Fitness section of the National Curriculum as well as create cross-curricular links with the ICT department.

Data Handling, Databases and Data Files

Pupils can create and manipulate their data files in the form of a database to include the results of their tests on the rowing machines. They can then compare their results to the results of their friends or compare their results over a period of weeks to see if there are any improvements in strength and or stamina. This information can then be used to create graphs of the data.

Data Logging

By using the Concept 2 LogCard the pupils data from use of the Indoor Rowers can be recorded directly to the computer files.

Desktop Publishing

Pupils should create a report to show the results of their efforts on the Indoor Rower. This should include a graph of their performance over the weeks, text to explain the graph and if possible a picture of them on the equipment downloaded from the schools digital camera.

Digital Camera

Wherever possible the school should make available a digital camera to photograph the pupils. They should then be able to access pictures of themselves on the Indoor Rower that should then be used in their report.

Equation Editor

Pupils will be given the chance to use the Concept 2 weight adjustment equation so that there can be a comparison between all pupils regardless of size. This equation should be included in their report hence requiring the use of an equation editor.

Graph Plotter/Graphing Software

Pupils will use a graph plotter or graphing software to show the results of their work.

Icons

Pupils will become familiar with some of the more common icons used in the Concept 2 software and in the generic software that they will use.

Fulfilling your ICT requirements with the Concept 2

Internet

Pupils will have access to the Internet to view the Concept 2 website and see how their scores place them in the World Rankings.

Intranet

Wherever possible pupils should be given the chance to add a page to the PE departments' page on the school intranet.

Large Display Screen

Pupils should be given the chance to use large display screens to see how they are progressing in the rowing challenge. If they compete at the British Indoor Rowing Championship they will be given the chance to see their results displayed on the big screen at the event.

On-line

Through the use of the Concept 2 Message Board pupils will be given a chance to experience the exchange of comments and ideas through an online discussion or conference.

Portable/Laptop Computers

Where possible pupils will be given the chance to record their data on laptop computers so that the information can then be moved to the school mainframe system without losing data.

Presentation Software

Pupils can be given the task of creating a presentation in small groups to present their findings about stamina and strength training using PowerPoint presentations where possible.

Projectors and Videos

Concept 2 videos are available to help teach pupils good technique in order that they may exercise safely on the Indoor Rowers.

Scanner

Where a digital camera cannot be used a conventional camera should be used so that pupils can be given the chance to scan a picture of them to use in their report.

Spell/Grammar Checker

Pupils will need to use a spelling and grammar checker when creating their report.

Spreadsheet

Pupils can use a spread sheet to present their data from the data files so that they can then perform some tasks, including calculating the combined distance of all pupils in the class, finding the average distance travelled in a set time and finding the average power output and 500m split time.

Text Art

Text art should be used in the pupils' reports.

Video Capture

If the school has a digital video camera then pupils may be given the chance to create a short video sequence about the tasks that they have performed.

Web Authoring Software

If the school has an intranet site pupils should be given the chance to use web-authoring software to create a page of their information for the site.

Web Site - Web Pages

Pupils will be required to use the Concept 2 website to find out more information about the tasks they are to perform.

Word Processing

Pupils will be given the chance to produce their report using word processing packages.

Wristwatch Monitors

During the tests on the rowing machines pupils will be given a chance to wear heart rate monitors that record their heart rate during the tests.

Section 9 - Raising Money Using The Indoor Rower

Section 9:	Raising Money using the Indoor Rowers	.9.1
i.	Raising Money	.9.2
ii.	Case study of Farnborough School	.9.3
iii.	How they did it	.9.4
iv.	Awards for AI	.9.6

Raising Money For Indoor Rowing

This section of the teachers pack includes information about how to raise money using the Indoor Rower, and how to apply for grants to buy more Indoor Rowing equipment.

There is a sample press release and description of how Farnborough School in Nottingham recently raised £8,086 for the Gill Murray IMRT Appeal.

There is also a part filled in Awards for All bid with sample answers for the relevant questions. The sample answers come from Djanogly College in Nottingham whose successful bid has allowed them to buy five new Indoor Rowers and some Slides for them to use in their lessons. For any more information about applying for Awards for All bids visit the website at www.awardsforall.org.uk

Case Study of Farnborough School

Farnborough Channel Row - Sample Press release, as used in the Concept 2 Newsletter

Gill Murray, friend of Farnborough School, and wife of teacher Paul Murray, lost her fight with cancer earlier this year. When Gill was diagnosed with cancer, she discovered that the Nottingham City Hospital that treated her could not supply the form of radiotherapy that she needed, IMRT (intensive modulated radiotherapy). The advantages of this form of radiotherapy are reduced negative side effects during treatment. One of Gill's last wishes was that she could raise the £100,000 needed to buy an IMRT machine for the Nottingham City Hospital, even though she knew that she would not benefit from it herself.

As friends of Gill, the Farnborough PE Department set about thinking of ways to raise money for the Gill Murray IMRT 2004 Appeal. Many ideas were considered before they arrived at the plan of ten teams of ten indoor rowers competing in relay over 35,000m, the distance from Dover to Calais.

Two pupils, one male and one female, were selected by each tutor group to participate in the channel row, and combined with the other pupils from tutor sets in the other years. This created six teams of ten pupils. The staff then entered into a draw to make up the remaining four teams.

Each pupil and member of staff was then given a sponsorship form, with the added incentive that the tutor group that raised the most money would win themselves a day off school visiting Alton Towers. The pupil who raised the most money individually also won two tickets for Alton Towers. Each pupil tried to get as many friends and family to pay £1 to guess the time of the winning team. In return, the winners received a bottle of Champagne and a £20 gift voucher from Sainsbury's. To raise further funds, the school staff entered into a staff-only prize draw to guess how much money would be raised by the day of the row, the prize for which was a week's holiday in the Lake District staying at the cottage of one of the members of staff.

The school publicised the event through the local TV news, BBC Radio Nottingham and the local papers.

After two weeks of preparation and training with one of the school's resident Concept 2 Instructors the pupils and staff were ready to take on the Channel.

On the day of the event, Concept 2's Ben Addison arrived early and set up the ten Indoor Rowers and a big screen where past world championship videos were shown. At the end of the school day all of the pupils arrived ready for their race. Each team had a slightly different strategy, each taking into account that there were two pupils from each year group from year 7 (age 11) to year 11 (age 16). The staff teams took the event no less seriously with teams catering the length of time for their rows according to their fitness. The school hall was packed with 100 competitors and at least 150 spectators to watch the start of the event. The racing was tight for the first 20km before one of the teachers' teams began to edge into a lead and ended up winning in a time of 2:15.05.

Once the winning team finished, all the teams stopped but recorded their average split so that their predicted finishing time could be calculated.

Once all the money was collected, the PE department announced that they had greatly exceeded their target of £5,000, raising a total of £8,086.

The Farnborough School Fundraising Event.

In June 2004 Farnborough School, Nottingham, used the following method to raise money for the Gill Murray IMRT 2004 appeal. Over a two-month period they raised £8,086 - exceeding their target by over £3,000.

How they did it:

Six Weeks Before the Event:

- The PE staff came up with the idea of rowing the equivalent distance to crossing the English Channel on Indoor Rowers, raising money for the Gill Murray IMRT 2004 appeal by having each pupil in the school raise money. Each pupil in the school would be given a sponsorship form, it would cost £1 to predict what time it would take the winning team to row the 35,000m.
- To provide an incentive for the pupils the form raising the most money would win a day trip to Alton Towers.
- The individual raising the most money would also win tickets for themselves and a friend for the same trip to Alton Towers.
- Prizes for the winners were supplied by local companies including supermarkets.
- The PE Staff approached the Senior Management Team to make sure that they had support of school, then approached the school staff, without whom the event could not succeed, as each tutor group in the school had to be involved.
- The format of the row was teams of 10, with a relay format where each pupil had to take part in order. Each pupil should have an equal number of turns but the time for each pupil was at the discretion of the team. The number of rules were kept to a minimum.
- The PE Staff decided on a date and arranged to borrow 10 Indoor Rowers from Concept 2.

Four Weeks Before the Event:

- The PE staff explained the idea to pupils in the school and gave each pupil a sponsorship form.
- Each tutor group had to select two pupils, one girl and one boy to represent them in the Channel Row, and they joined with other pupils in parallel tutor groups in the other years in the school. This meant that all teams had ten pupils, two from each of the year groups.
- The PE staff contacted the local press, radio and television to promote the event. This was well received as it involved pupils taking part in exercise to raise money for a good cause.

Two Weeks Before the Event:

- To get the teachers more involved the PE staff created four teachers teams that they drew out of a hat.
- To raise further money the teachers could also be involved in the fundraising by paying £1 to guess what the total raised would be. The prize for this was a week in the cottage owned by on the members of staff in the Lake District.
- Pupils and teachers took part in training sessions in how to use the Indoor Rowers and how to change over effectively to minimise lost time on the rower.
- Pupils and teachers could then come down and practice in designated lunch times on the rowers already owned by the school.

One Week before the Event:

- The form tutors collected all the money from pupils and the PE staff worked out the total, the winners of the form who raised the most money and won the trip to Alton Towers and the individual who raised the most money were announced the week after the event.
- Articles appeared in local press and on the radio.

Day of the Event:

- Concept 2 arrived and set up the ten Indoor Rowers and supplied a big screen and some rowing DVDs to entertain the participants during their row.
- The pupils and teachers arrived after school to take part in the row and after some photographs for local press they started. Each team had the monitors set to 35,000m.
- The event had 100 participants (ten teams of ten) and at least 150 spectators.
- All teams stopped rowing when the winning team finished.

Week after the Event:

- The PE staff worked out who the overall winner who selected the nearest time was and arranged to supply them with their prize.
- The PE staff also worked out from the average split what time each of the other teams would have finished and created a results sheet.
- Once all the money was collected the Teacher/Staff prize was worked out and the prize was given to the member of staff.
- Articles appeared in local press and on the radio.
- The final total was released and a cheque was supplied to the Charity.

Awards for All is a Lottery grants scheme aimed at local communities. They award grants of between £500 and £5,000 until April 2005 from then on they will provide grants of up to £10,000.

They can fund projects that enable people to take part in art, sport, heritage and community activities, as well as projects that promote education, the environment and health in the local community.

You can apply at any time

- The application form is short and simple
- There are links to guidance notes and sources of help
- You will be told if you are successful or not within 8 weeks

Awards for All has been used extensively to pay for indoor rowing equipment for schools. For more information about Awards for All please visit their website at www.awardsforall.org.uk

Celia and Keith Atkinson

Celia and Keith Atkinson MBE are founder members of the Concept 2 Education Team. Both are graduates of Durham University and retired teachers. Keith was Head of a Nottinghamshire comprehensive school and has a fifty-year association with rowing as a competitor, ARA Gold Award Coach, FISA International Umpire and President of Nottingham Boat Club. Despite having MS, he has won two Bronze medals at the World Indoor Rowing Championships in Boston.

Celia and Keith have been involved in developing all aspects of the Concept 2 Education Programme since its inception.

Maxine Tomkins

Maxine is a qualified physical education teacher with 15 years experience teaching in inner city schools, she is currently also a School Sports Co-ordinator. She is a I.A. qualified rowing coach, ARA Indoor Rowing Tutor and has five years experience teaching indoor rowing in an inner city school. Maxine is a self confessed indoor rowing nut and spends all of her free time thinking up new ideas for her next indoor rowing lesson.

Alex Skelton

Alex is a former physical education teacher and School Sports Co-ordinator. He has a Sports Science Degree and PGCE from Loughborough University. Alex has rowed since 1996 and now competes for Nottinghamshire County Rowing Association.