Learning with Abel

Whether you are an existing ringer or a new ringer, these notes set out a learning plan and explain how to use simulator technology in 'workstation' mode to take you from starting to ring rounds to acquiring the skills needed to plain hunt a bell to methods. Once you have mastered these basic skills, progress on to ringing methods inside can be quite rapid, and you will know enough from these notes to progress further on your own.

Simulators can also be used in 'silent practice' mode where all the bells are silenced and connected to the simulator, so that the simulator acts as an alternative form of sound control with no sound made outside the tower, and you can hold a practice with real ringers,

However the latest releases of Abel, Beltower and Virtual Belfry all have video clips of real ringers, so in workstation mode you can also get a realistic simulation of ringing, where the simulator rings most or all of the other bells, avoiding the need for a band of experienced ringers, and this technology is improving all the time.

If you are an experienced ringer, ringing with a simulator, and especially by ear, is different to ringing with real ringers, who often adjust to fit round you. Therefore rather than try anything too complex, it is sensible to start with some basic exercises, as set out in this boolklet..

Whilst what has been written in this booklet explains how to use Abel, the same principles apply to Beltower and Virtual Belfry, and similar notes are available for those applications.
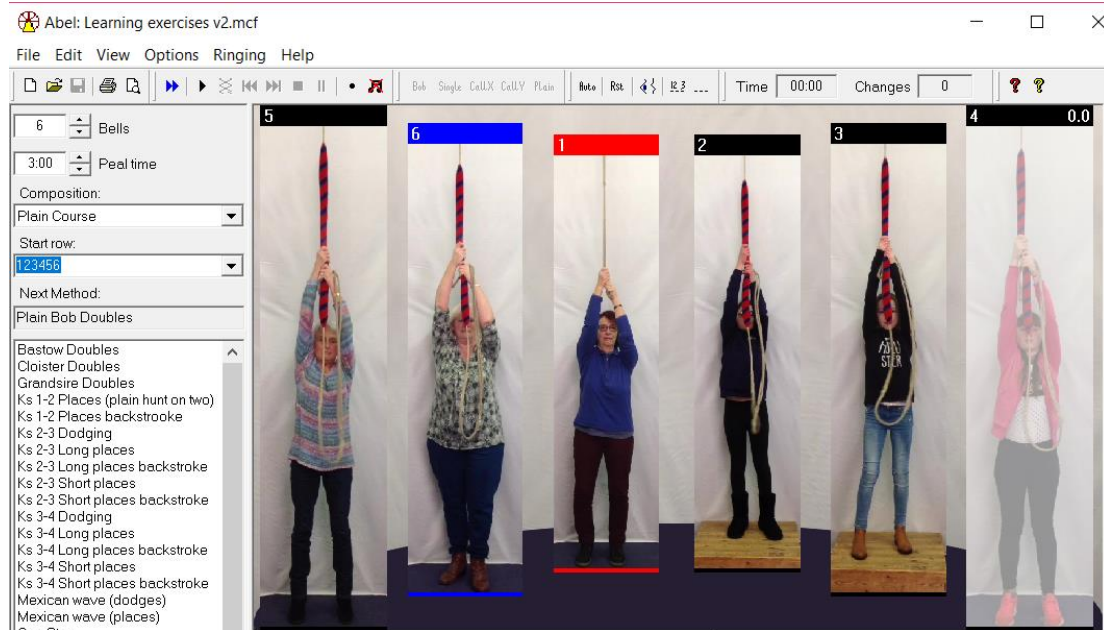
The screen options

Abel has a number of choices in the 'Options' ⇨ 'Screen and Print Options' menu.
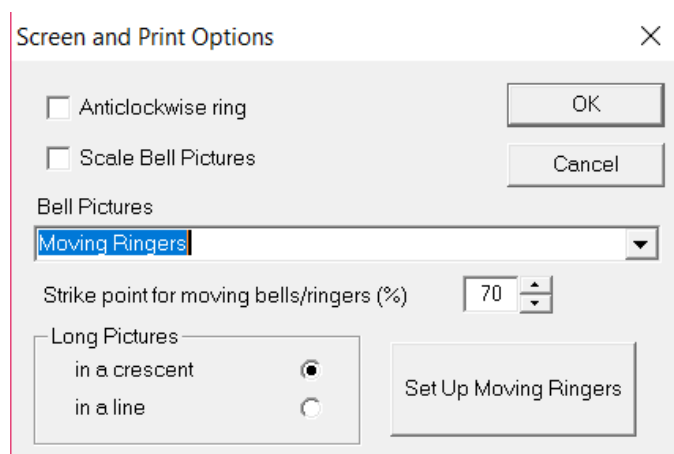
Screen and Print Options window

In this booklet we will concentrate on the 'Moving Ringers' option which can be viewed either in a crescent or in a line, as shown in the two examples overleaf:

Ringers in a crescent - the bell the pupil is ringing (4th in this case) is on the far right and greyed out – the other bells appear as they would to the ringer of that bell in the tower.
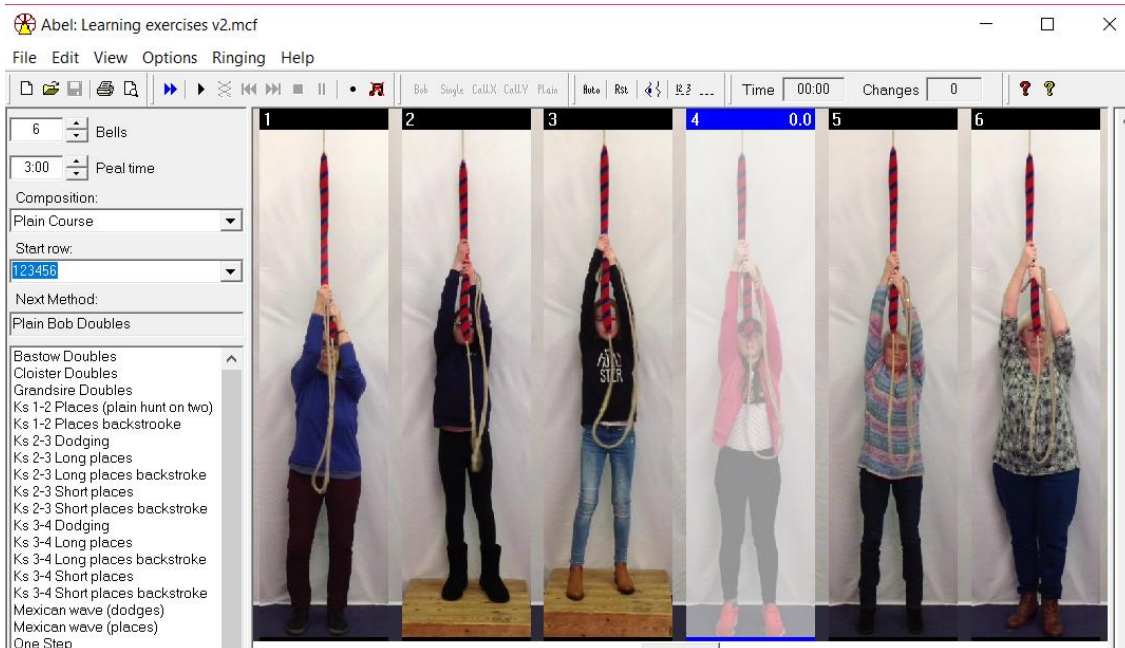
Ringers in a line – the bells appear in numerical order from treble to tenor

Whilst you can use 'Moving Ringers' there are also various options for icons that can be used instead. Bellringing is as much about the sound that comes out of the tower as watching ropes; some would say more so. Many people find that after a little while they can hear their bell and do not need to watch ropes all the time. Do practice with the icons, or even looking away from the screen altogether. It's not as difficult as you might imagine!

Ringing rounds

Abel allows you to practice ringing any bell to rounds. Your tied bell or dumb bell will have a sensor which transmits a signal to the computer which tells Abel when to strike. The set up varies from tower to tower, but your instructor will show you how to switch on the computer and open Abel.

To learn to ring rounds on a simulator we suggest that you start with the tenor, as this is the easiest bell to hear. Then, once you have mastered ringing this, move to the 'inside' bells. If you have difficulty hearing six bells to start with, do start with three, four or five, and build up from there. You can even practice on eight, ten and twelve bells later!

To ring as a particular bell, click on your (external) bell, drag to the bell you want it to sound as, then release. Thus, to ring the external third as the tenor: click 3, drag to tenor, release.

For moving ringers in a crescent, the circle rotates to put your selected bell at the far right; and it greys out as soon as you ring it. You then see the remaining bells as you would see them in the tower, from left to right (if ringing clockwise)

To return to normal mapping in either line or crescent view, just single click on the treble.

Also make sure that Abel rings at the correct speed for your ring of bells. For the average ring with a tenor of 10cwt the peal time is around 2h:45m, but on a lighter ring it might be 2h:40m and a heavier ring 3h:00m.

Using the Autostart feature

For someone who has just started learning there are two challenges:

(a) ringing at a steady pace;

(b) ringing at the pace set by another ringer (or Abel).

Traditionally jumping to (b) is all you can do, but with Abel you can use Autostart to practise (a) first: get the learner ringing and settled down at some steady speed they set, then click the 'Auto' button to make Abel join in at their speed (and when it varies, click Auto again to adjust to the new speed). Later, when they can maintain a steady speed for say 20 pulls, move on to getting them to follow Abel or a live ringer at typical peal speed.

When to pull off

If you have a footswitch, press it and the treble will immediately start to pull off at handstroke, and you can pull off just like you would on a corresponding tower bell. If you do not have a footswitch someone will need to click on the start button for you.

If you are an inexperienced user, it can be difficult getting the feel of pulling off in time. Therefore you may need your instructor to ring the handstrokes for you to start with, till you become confident.

You can also practice listening and counting your place in the row at home by pressing the 'J' key on your keyboard. Click your mouse over whichever bell you want to ring before starting. [I'd point out that most people do this without watching the screen at all, just listening to the bells, and this is a great help in hearing your own bell in the tower. Also, the benefits it has of getting you used to the rhythm of good ringing.

How accurately did you strike your bell?

As long as 'Striking Display' it is switched on in the 'View' menu, the blue bar at the top of your bell bar will change colour (red/amber/green) to show how accurately you rang your bell on each stroke. If your bell is early, only the left hand end of the bar illuminates; if it is late, only the right had end illuminates. The bars are also colour coded shades of red/amber/green, depending on how far out you are. In the example below the 6th is moderately early.
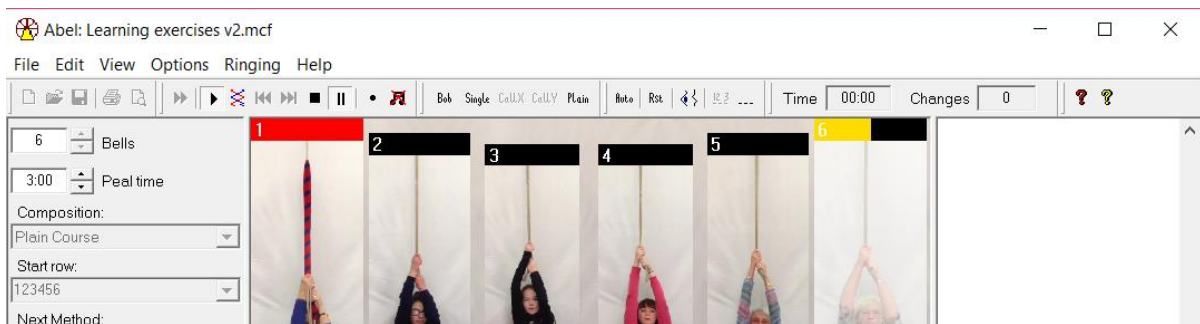
At the bottom of the screen you will also see a display with a series of numbers. As you ring each row in addition to hearing your bell, you will be able to see how far out your bell is from its ideal position (indicated by the lines under each bell). In the example below, the tenor is quite late.
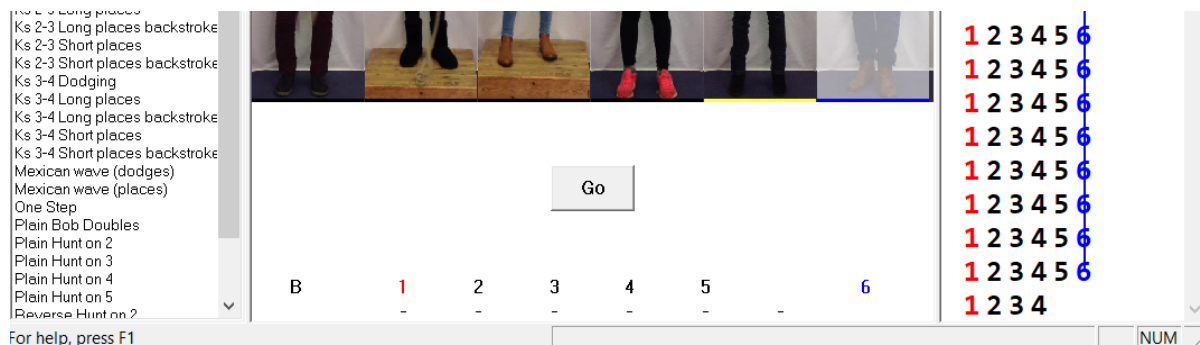
At the end you can also click on 'Ringing' ⇨ 'Review Striking' and this will show you graphically how accurate your ringing has been. Each row is analysed and colour coded, and there is a percentage error score for each stroke.

By clicking on the 'Play' button you can also play back a recording of your ringing again, and the number display at the bottom pops up along with this to help you see any errors visually.

What do the percentages mean?

A bell can be early or late (+ve or -ve) so even if the bell strikes quite randomly, the two can cancel each other out. The average error ignores whether the rows are early or late and is a more representative indication of how variable the striking is.

In the example above the bell has an average error of 15% - 16% and tendency to strike 7% early at hand and 13% late at back. You can see this from the saw-tooth pattern. Ideally you should be aiming for 10% average error on a tower bell or dumb bell, and 4% by pressing the 'J' key.

If you want a more detailed analysis you can download the CAS striking analysis software from the 12 Bell competition website *http://www.12bell.org.uk/downloads/cas1.4.zip*

To install CAS you need to unzip and save these files to a directory on your computer. The only prerequisite is that you need Java installed.

Once installed the .stk file in the 'Review Striking' window can be 'save as' as Lowndes .txt format file, which can be opened by the CAS software. This gives a more detailed analysis in terms of faults, and bell by bell statistics. You can save the .txt and .stk files in the C:\Users\…..\Documents\AbelSim\Striking folder.
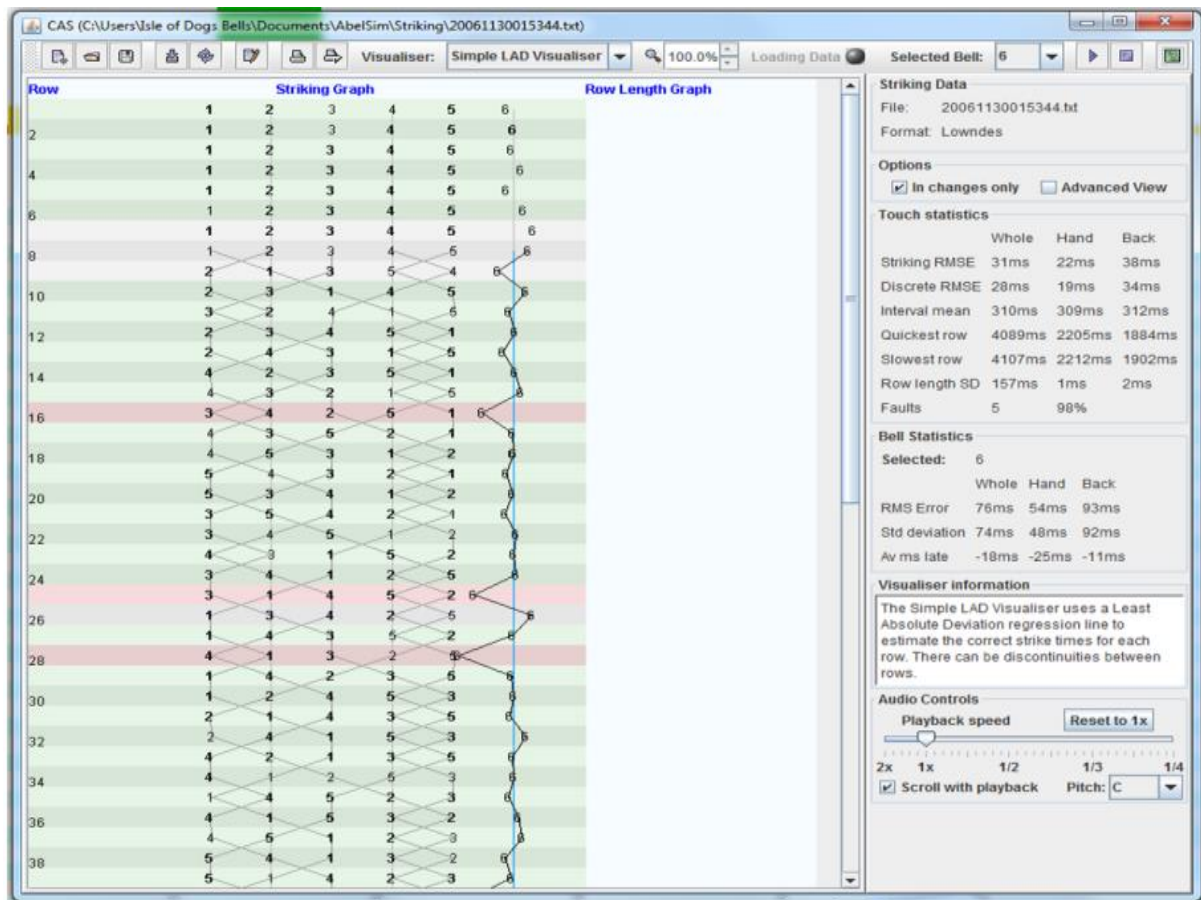
CAS Screenshot

The limit of the human ear

One row of ringing (1 2 3 4 5 6) lasts about two seconds. Therefore the gap between each bell is one third of a second = 0.333 seconds.

Multiply this by 1,000 = 333 milliseconds (Less if you are ringing on higher numbers).

Therefore <u>10% error = 33 milliseconds.</u>

A 10% error is not really noticeable when ringing with real ringers and with practice most people can hear a 5% (15-20ms) inaccuracy of one bell if the other bells are all perfect.

Abel can be used to demonstrate inaccurate ringing. Right click a bell on screen to bring up the Striking Controls window, which allows you to adjust any bell to strike early or late on any stroke, in increments of 5%. Thus people can play 'spot the error', and also test the limits of their hearing of errors.
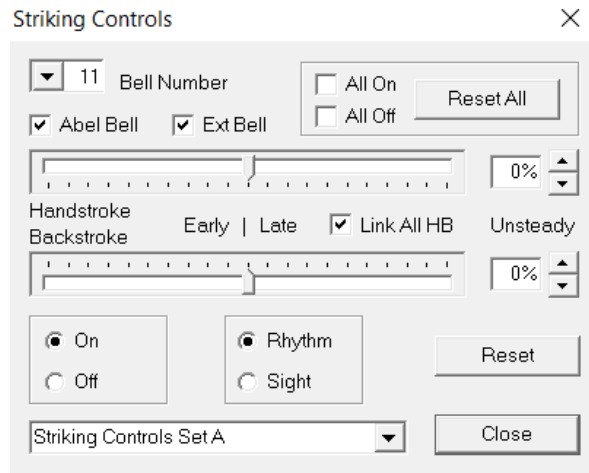
Standard Deviation (σ)

CAS and Virtual Belfry use standard deviation as the measure of variability. This is not mathematically the same as the average error. For a 'Normal' distribution 68.2% of blows will be struck within the standard deviation.

The Open handstroke lead

In much of the country* it is a convention in ringing that a one beat pause is allowed at the end of each backstroke, before the next handstroke. [* notable exceptions are Devon and South Yorkshire]

1 2 3 4 5 6 1 2 3 4 5 6 - 1 2 3 4 5 6 1 2 3 4 5 6 - etc

In musical terms the bar has thirteen beats, the thirteenth beat being a rest.

Once you have mastered ringing the tenor and then an 'inside bell' in rounds, practice leading on the treble. It's not an easy skill to master, and it is far easier to learn this skill on the simulator than with a real band!

Developing your ringing skills

The skills that you need to develop before moving on to ring methods are:

- Listening to your bell and being able to distinguish it from the others

- Counting your place and knowing which place you are in.

- Controlling your bell every handstroke and backstroke and making it ring where you want it to (practice being able to set it 10 times on each stroke)

- Developing a sense of rhythm and knowing how much to hold up or cut in to move one place

Counting your place

Count along in your head and emphasise your bell. It will take a lot of practice, but eventually it will become automatic and you will know instinctively which place you are ringing in.

<div align="center">

One, **two,** three, four, five six,

One, **two,** three, four, five six, gap;

One, **two,** three, four, five six,

One, **two,** three, four, five six, gap;

etc.

</div>

Developing listening by covering

Perhaps the easiest bell to hear in any ring or on the simulator is the tenor. As it stays still in odd bell methods you can practice developing your listening skills by ringing the tenor (6th) to a doubles method such as Grandsire or Plain Bob, without needing to worry about changing speed as well, or developing any ropesight.

To do this go 'File' ⇨ 'open' and scroll down to 'Learning Exercises'. Then select (double click) Grandsire or Plain Bob and make sure that you have selected the sixth bell as described above.

The three speeds of ringing

In change-ringing one of the basic conventions is that when you change places you usually only move up one place in a row, or down one place in a row. Of course, you can also stay still. Therefore, once you develop your control over the bell, and the feel of how hard and when you need to pull in order to wait to slow up, or cut in to speed up, you will start to develop the skill of ringing by rhythm

In addition, unless and until you can control the bell sufficiently accurately to move up or down one place, you will also be unable to see who you are following and develop the skill of ropesight, as you will actually be ringing at another position in the row.

You can practice ringing at 2h:30m. 3h:00m and 3h:30m peal speed to get an idea what the three different speeds feel like.

Changing speed at handstroke

The skill to develop first is changing speed at handstroke, because that's what you need for call changes and for your first ringing exercises. You'll later learn to change speed at backstroke too, for more advanced exercises and for method ringing.

Your instructor may therefore start by practicing some simple call-changes with you, so that you only change speed occasionally

In the 'Options' ⇨ 'Ringing Options' menu and there are options to call changes by the bell going up or bell going down. You can also practice ringing call changes with the conductor calling the places that swap, rather bell up or by bell down.
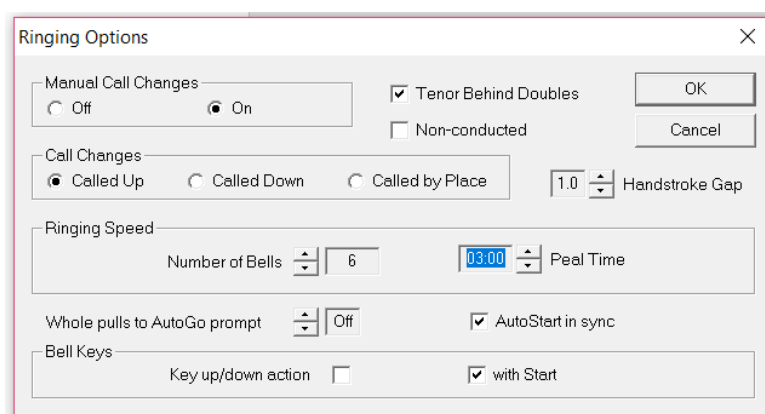
To practice call changes, start Abel ringing rounds, then point the mouse over the bell which moves up or down in the row and click the mouse. If calling by place, click on a bell place, and the bell in that place moves up.

Remember that you will need to adjust the position of your hands on the sally. Higher will make the bell go quicker, letting it go up and holding it on the balance will be slower.

Changing more frequently at handstroke.

There are two pre-programmed exercises to cover this:

- **Long places** – where you move up or down one place every alternate handstroke

- **Short places** – where you move up or down one place every handstroke

|	Long places		Short places
	1 2 3 4 5 6		1 2 3 4 5 6
H	1 3 2 4 5 6	H	1 3 2 4 5 6
B	1 3 2 4 5 6	B	1 3 2 4 5 6
H	1 3 2 4 5 6	H	1 2 3 4 5 6
B	1 3 2 4 5 6	B	1 2 3 4 5 6
H	1 2 3 4 5 6		
B	1 2 3 4 5 6		
H	1 2 3 4 5 6		
B	1 2 3 4 5 6		

Long places   **Short places**

Once you have opened Abel from the desktop, go to the 'File' ⇨ 'Open' menu, Then scroll down and click on 'Learning exercises' and then click on 'Open' on the exercise that you wish to practice. Also, go to the 'Ringing' menu and make sure that the stop at rounds box is checked, so that you only ring the exercise once before staying in rounds (once you have done this a few times and are confident, you can unclick the box to practice the exercise continuously).

Also make sure that 'Stand at rounds' is turned off as well, so that the bells just continue in rounds without standing; and the ringer/trainer can then click 'go' again to repeat the method/exercise.
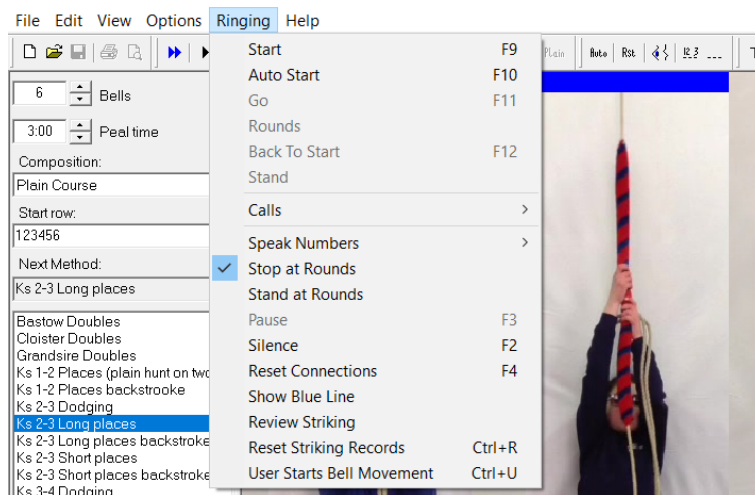
Finally, select the bell on which you wish to practice on, as explained above.

In the example above 2-3 Long Places has been selected and the pupil is ringing bell number 2.

To begin press on the footswitch (or your instructor will need to click on 'Start' with the mouse) and the bells will start ringing rounds. To ring the exercise press the footswitch again (or click on 'Go' with the mouse) and you will hear a command to start next handstroke.

You can then repeat this as frequently as you like, and then unclick the 'stop at rounds' option, once you are confident. Then try short places. You will change position every handstroke, alternately ringing quick and then slow handstrokes.

Plain hunting by rhythm – Plain hunt on two

If you have mastered Kaleidoscope 1-2 places, you can then practice ringing Plain hunt on two – they are the same thing.
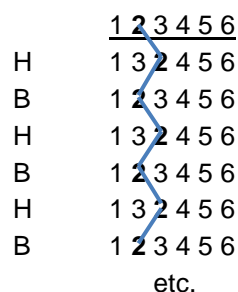
Changing speed at Backstroke

The previous exercises practice changing speed at handstroke only. However, to progress further you will need to learn how to change speed at backstroke as well. Therefore there are also the same Kaleidoscope exercises in the Learning Exercises menu, but starting at backstroke, to practice..
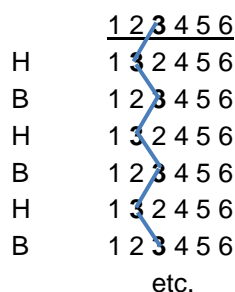
To ring these exercises successfully you will also need to practice adjusting the position of your hands on the tail end. An inch or two higher to speed up, and an inch or two lower to ring to the balance and slow down.

Changing speed on both strokes

The next step is to practice changing speed at both backstroke and handstroke. By ringing the 2nd in the first of the following exercises you can practice slow handstrokes and fast backstrokes and then by ringing the 3rd to the same exercise you can practice ringing the strokes the other way round.

	1 2 3 4 5 6			1 2 3 4 5 6
H	1 3 2 4 5 6		H	1 3 2 4 5 6
B	1 2 3 4 5 6		B	1 2 3 4 5 6
H	1 3 2 4 5 6		H	1 3 2 4 5 6
B	1 2 3 4 5 6		B	1 2 3 4 5 6
H	1 3 2 4 5 6		H	1 3 2 4 5 6
B	1 2 3 4 5 6		B	1 2 3 4 5 6
	etc.			etc.

Dodging 2-3
(2nd dodging 'up')

Dodging 2-3
(3rd dodging 'down')

Plain hunting by rhythm – Plain hunt on three

Once you have mastered changing speed at handstroke and backstroke, you can move on to plain hunt on three, with three bells covering. Select this form the list of learning exercises, as before.

Adding ropesight.

You can progress on a simulator ringing by rhythm alone, but if ringing with real ringers, you will need a degree of ropesight, However all bells differ, so ropesight is only a guide to when to pull, and really good ringing depends on listening, which is why simulators are so valuable a tool.

The moving ropes feature in Abel can also help you develop your ropesight. However, because of the time delay this is only practical in the 'workstation' mode on a bell or dumb-bell. The problem is not a limitation in Abel, but a limitation in people!

However if you want to practice ropesight at home the Whiting Society have produced an excellent DVD with lots of examples of ringing to watch along to. There are also on-line ropesight apps – e.g. http://www.ringbell.co.uk/toolkit/ringbell.htm

As a ropesight aid, In Abel's 'View' menu you can also tick 'Highlight Ringer to Follow' and a yellow bar will appear above that ringer, just before you need to pull. However, there is a danger that people will get addicted to looking for the yellow highlight, rather than the moving rope/sally/hands, so it's best not to use this feature too much.
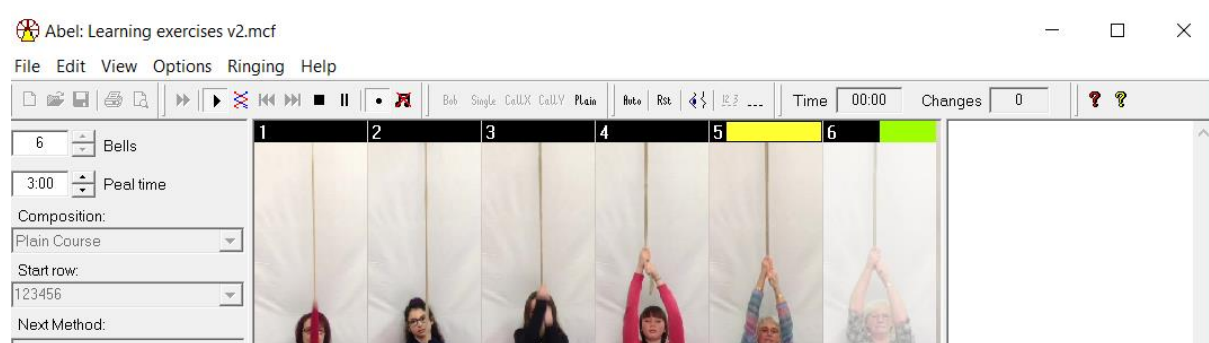
Bastow Doubles

In Bastow the treble rings handstroke and backstroke alternately in 1st and 2nd position, but follows a different bell (2, 3, 4 or 5 each time). Once you have reached the stage where you instinctively know how much to hold up or cut in at handstroke, you can ring the treble to Bastow and practice spotting who you are following.

Don't forget, concentrate on counting your place and holding up or cutting in the right amount as your first priority. You will see what you are doing, without being able to do this first.

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                1 2 3 4 5 6                           1 2 3 4 5 6
        H       2 1 4 3 5 6                   H       2 1 4 3 5 6
        B       2 1 3 4 5 6                   B       2 4 1 5 3 6
  I     H       1 2 4 3 5 6                   H       4 2 1 3 5 6
        B       1 4 2 5 3 6                   B       4 1 2 5 3 6
        H       4 1 5 2 3 6                   H       1 4 2 3 5 6
        B       4 1 2 5 3 6                   B       1 2 4 5 3 6
        H       1 4 5 2 3 6                   H       2 1 5 4 3 6
        B       1 5 4 3 2 6                   B       2 5 1 3 4 6
        H       5 1 3 4 2 6                   H       5 2 1 4 3 6
        B       5 1 4 3 2 6                   B       5 1 2 3 4 6
        H       1 5 3 4 2 6                   H       1 5 2 4 3 6
        B       1 3 5 2 4 6                   B       1 2 5 3 4 6
        H       3 1 2 5 4 6                   H       2 1 3 5 4 6
        B       3 1 5 2 4 6                   B       2 3 1 4 5 6
        H       1 3 2 5 4 6                   H       3 2 1 5 4 6
        B       1 2 3 4 5 6                   B       3 1 2 4 5 6
                                              H       1 3 2 5 4 6
                                              B       1 2 3 4 5 6
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Bastow   **Cloister**

Cloister Doubles

If you have mastered Plain Hunt on three and Bastow, then try ringing Cloister doubles.

In Cloister (with a Plain Bob Start) the treble and 2nd both move between 1st and 3rd place following different bells each time. This is good practice at counting a small number of places, and spotting ropes by ropesight, whether on a simulator, or with a real band.

Plain hunting by ropesight and rhythm – Plain hunt on four

You can then move on to plain hunt on four.

You can also try Plain Bob Minimus, where the treble moves up and down three times, following the others in different orders. To minimise the differences in speed, ring this with two bells covering.

Plain hunting by ropesight and rhythm – Plain hunt on five

You can then move on to plain hunt on five.

Once you can do this, you can try Grandsire Doubles in which the treble and second both plain hunt. If you are ringing the treble, you will always start with the 2nd at the beginning of each run up or down, so you only really have three other bells to worry about. Plain Bob doubles lasts 40 changes and the treble hunts up and down four times, the other four inside bells swapping over each time.

Further Advice and Support

The Association of Ringing Teachers publishes a book: Teaching with Simulators, which can be obtained by visiting their on-line shop http://ringingteachers.org/resource-centre/shop

There are also a series of you-tube videos covering most of the exercises in these notes, and Abel has extensive Help files..

Workshops are also held in various parts of the country and can be booked by visiting the upcoming courses and workshops page https://smartringer.org/public/daycourses/

There is also a Ringing Simulator Users and Suppliers Facebook page, where you can communicate with other users and the software writers and hardware suppliers. https://www.facebook.com/groups/1441867412528870/

We also have a network of experienced users who can help you set up and troubleshoot any problems that you may have. In the first instance contact the ART Administrator.