



# How to Build an Orchestra



Online Project Pack  
Key Stage 2  
Spring 2020

**London Symphony Orchestra**

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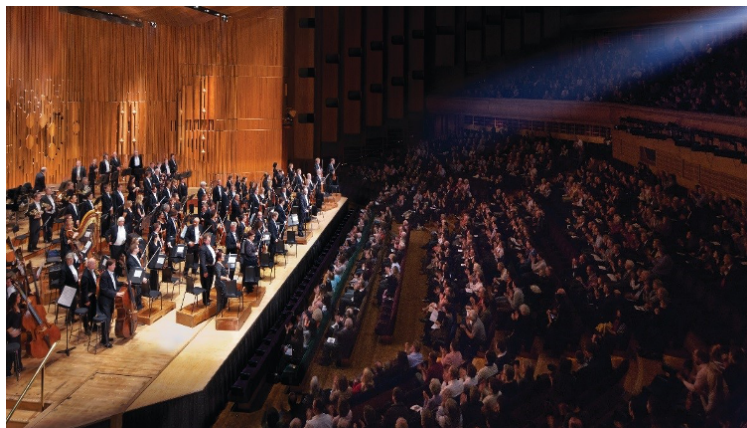
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# About the London Symphony Orchestra and LSO Discovery

The London Symphony Orchestra is bringing the greatest music to the greatest number of people. This is at the heart of everything that it does. This commitment to serve music and the people who love music is borne of a unique ethos developed over more than 100 years. Established in 1904 by a number of London's finest musicians, the LSO is a self-governing musical collective built on artistic ownership and partnership. The Orchestra is still owned by its members and has a signature sound emanating from the combined zeal and virtuosity of these 90 brilliant musicians who come from around the world; its music-making remains firmly at the centre of the Orchestra's activities. The LSO is Resident Orchestra at the Barbican in the City of London, where it gives 70 symphonic concerts every year, and performs a further 70 concerts worldwide on tour. The Orchestra works with a family of artists that includes the world's greatest conductors – Sir Simon Rattle as Music Director, Gianandrea Noseda and François-Xavier Roth as Principal Guest Conductors, Michael Tilson Thomas as Conductor Laureate and André Previn as Conductor Emeritus. LSO Discovery, the Orchestra's community and education programme based at LSO St Luke's, brings the work of the LSO with all parts of society and engages with 60,000 people every year. The LSO reaches out much further with its own recording label – LSO Live, the first of its kind which launched in 1999 – and now streams its own music to millions around the world.

LSO Discovery has, for the past 29 years, been one of the most important ways for the LSO to realise its mission of 'making the finest possible music available to the widest number of people'. Through workshops, projects and master classes, LSO Discovery has become a world leader in taking the music and players of the orchestra into the community, and making the LSO relevant to the lives of thousands of people beyond the concert hall.



# Introduction

This pack is designed to help you and your class explore our exciting new children's book:

*How to Build an Orchestra*, written by Mary Auld in collaboration with the London Symphony Orchestra.

Follow conductor Simon as he puts together an orchestra to perform an exciting concert and along the way discover all you need to know about all of the instruments that make up the orchestra, how they are played and what they can do.

The book also features illustrations by Elisa Paganelli (look out for some familiar faces) – and two CDs of the music mentioned throughout played by the LSO.

## Classroom Projects

Here are two short projects for you and your class to undertake. They will greatly enhance your children's understanding of the music. The secret to success is little and often rather than a big push the day before! Music benefits from being part of the routine rather than a special event.

A few rules before beginning work with instruments:

- Take time to demonstrate each instrument. Encourage your children to use its name and hold it in the correct way. Pass it around the class and let children have a go. The children will then be able to make informed choices when they begin composing. Which instrument sounds like rain? Which instrument can be loud, soft, scary?
- Encourage your class to respect and care for the instruments from the start. This could save your eardrums from a pounding and will preserve the instruments in a good state of repair.
- Children should know to put an instrument gently down on the floor when not playing.
- Put in place a signal for silence. This could be simply putting your hand in the air or clapping a pattern. When children hear or see the signal they stop, put their instrument down and listen. You could even make this into a game.
- Finally, when working creatively with instruments it is important to try out the children's ideas as they suggest them. Nothing is 'right' or 'wrong' with this type of creative work.

# Project 1 – Beethoven's Storm

## Ludwig van Beethoven (1770 – 1827)



Beethoven was in appearance and manner a very unlikely genius. He was often dirty, dishevelled, rude, aggressive, unpredictable, and eccentric but his music told another story. Tragedy struck at age 28 when he began to go deaf and soon he could only hear his greatest works by imagining the sounds in his head. 2020 is a very special year for Beethoven fans as the world celebrates 250 years since his birth.

Beethoven wrote the first symphony with a program (or story) within it. His **Pastoral symphony (No 6)** from 1808 depicts five scenes from the countryside.

## Listening task

The fourth movement of Beethoven's 6th symphony describes a ferocious storm – one of the first musical storms ever written. To achieve his storm he uses **motifs** (or small ideas) that are put together to create the picture he wants.

Beethoven's storm motifs are:



**Wind** – swirling scales rushing up and down



**Rain** - short 'next-door notes' played by the violins at the beginning

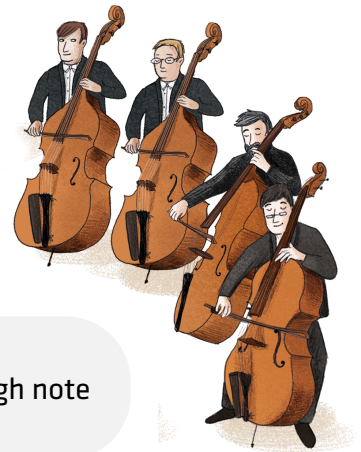




**Thunder** – scary rumbles from the basses and cellos



**Lightning** - a low note followed very soon after by a high note



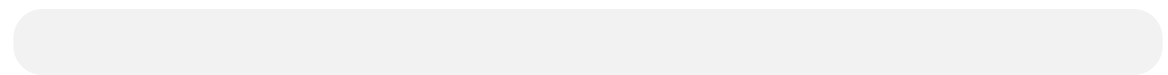
*For this task you need paper and art materials. Ask your children to place the paper (the bigger, the better) landscape (longest side top and bottom) on your table. The left side of the page will be the beginning of the storm and the right side is the end (you could even write 'start' and 'end' lightly in pencil to help you remember.*

1

Ask the class to think about what happens during a storm. The four main elements are listed above. Invent simple symbols to represent each element, perhaps using a different colour for each one, and make a small 'key' on the board explaining your symbols.

2

Listen to Beethoven's Storm.



Ask the children to listen out for the **lightning**. They could put up their hands every time they hear it or count the number of 'flashes'. There are about 14 flashes of lightning in this piece.

3

Listen again and encourage the class to draw their **lightning** symbol every time they hear it. Ask them to dot these 'lightning bolts' around their page. For example, if they are near the beginning of the storm place them towards the left, if they are near the end, place them towards the right.

4

Listen again and this time add in the symbol for **thunder**. Challenge your class to place these in relation to the lightning.

5

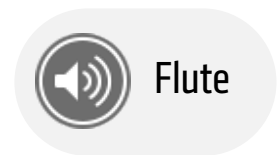
Listen for a 4th time and ask the class to add the **wind** and **rain** until they have made a picture of a storm. By now they probably know the shape of the piece quite well, challenge them to make their artwork match the music with a peak somewhere in the middle and then a calmer section towards the end.

6

At this point you might like to stop the recording and allow the class to just work on their artwork adding in colours or things not represented in the music such as trees bending in the wind, people sheltering etc.

7

Finally, listen once more and pay particular attention to the ending. Beethoven adds a new musical idea at this point - an upwards scale from the flute. What does that represent? Can you add it onto your pictures?



## Taking it further – finish the story

Beethoven's symphony has four other sections (called movements). They each represent a different part of his day in the countryside. Here's how to listen to them:

1

Take another sheet of paper and fold it into quarters. Place the paper landscape again and number the quarters 1, 2, 3, 5 (you have already worked on '4' – the storm!) like this:



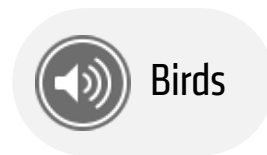
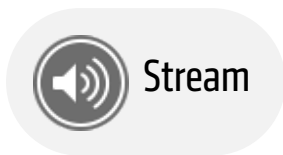
2

Listen to this section from movement 1.

Beethoven is describing a beautiful countryside scene on a lovely summer's day. Draw the scene in the first quarter of the page.

3

Movement 2 describes the flowing water of a stream or brook and at the end, birds singing in the trees. Listen to these two sections and draw what you hear in the 2nd section of the page.



4

The third movement of Beethoven's symphony represents a party! Everyone has stopped work for lunch and they are in a dancing mood. Listen to movement 3 and draw this scene in the third 'square'.

5

The final movement, after the storm, is gorgeous. The sun is out and everyone is relaxing. Draw this in the final section of the page.



Put this page together with your storm pictures and you have artwork for the whole of Beethoven's symphony!

# Classroom composition task – make your own Musical Storm!

It's fun to start musical activities with a warm up!

## The 'five facts' warm-up

Rachel Leach demonstrates in this video:



*You can adapt this game to fit with any five facts!*



- Stand in a circle and tap your fingers on the top of your head, stop and shout **“BEETHOVEN!”**  
(Ask the children to copy)  
*Ask for a gesture for when you shout ‘Beethoven’ and choose the best one.*
- Tap your shoulders and say **“born 250 years ago!”**.  
*Ask for a gesture for ‘born 250 years ago’ and choose the best one.*
- Tap your tummy and say **“6th symphony”**  
*A symphony is simply a large piece for orchestra. Choose a gesture for this.*
- Tap your knees and say **“...tells a story”**  
*Again, find a gesture for this.*
- Finally, tap your feet and say **“genius”**  
*Find one more gesture for this.*



Now try performing all of this at the same time as your children, like this:

Tap head:	<b>“Beethoven!”</b>	gesture
Tap shoulders:	<b>“born 250 years ago!”</b>	gesture
Tap tummy:	<b>“6th symphony”</b>	gesture
Tap knees:	<b>“tells a story”</b>	gesture
Tap feet:	<b>“genius”</b>	gesture



This task uses Beethoven's real storm motifs and is a simple way to encourage your children to think about musical structure and shape.

1

Explain to your class that we are going to make a piece of music to tell the story of a storm from the first drops of rain to the last. Explain further that a composer called Beethoven was the first musician to do this and we're going to borrow some ideas from him.

2

Have a discussion about storms and identify what makes up a storm.

(i.e. wind, rain, thunder, lightning)



It may be useful to write these ideas up on the board.

3

Explain that Beethoven's **rain** is made from fast, short (white) notes that move up and down by step. Like this:



**BODY PERCUSSION VERSION:** tap the fingers of one hand on the palm of the other

Decide as a class which instrument/s should make the **rain** sounds and ask one child to come and have a go.

# 4

Decide which instruments would best make the other elements on your storm list explaining that Beethoven uses the following characteristics:

**Thunder** – A low rumble and long notes, getting louder:



**BODY PERCUSSION VERSION:** rumble on the knees

**Lightning** – One large jump up from a low sound to a higher sound, with the low sound being the loudest like this:



**BODY PERCUSSION VERSION:** Stamp! Clap!

If using unpitched instruments, encourage your children to choose two contrasting sounds (i.e. a 'bang' and a 'crash')

**Wind** – swirling notes, quickly rushing up and down (perhaps glissandos or chromatic scales):



*NB: These motifs can be played on either pitched or unpitched instruments. If using unpitched, try to keep the shapes the same. You can also do this using voice or body percussion, or you can make up your own motifs to fit your classroom resources.*

5

Divide your class into four groups, one for each of the above storm elements. Ask them to practise performing their element so that it is fixed and the same every time.

6

Joining the class back together, appoint a conductor and encourage him/her to conduct your piece by simply pointing at each group in turn to build up the story of a storm.

Remind the class that in a real storm some elements are more important than others. For example, a real storm might look like this:

WIND	RAIN	WIND & RAIN----- Occasional flashes of lightning and rumbles of thunder	WIND STOPS RAIN SLOWS
------	------	--	--------------------------

7

When this is achieved, explain that Beethoven's storm sounds like it is passing overhead and has the following structure:

Soft – **Crescendo** – Loud – **Diminuendo** – Soft

**Can you fix your storm so that it also has this structure? It may help if you create a diagram of your piece on the board.**

8

Finally explain that Beethoven's storm has one final, slow sprinkling of raindrops before we hear the calm that follows. Can you add this to your piece?

# Taking it further

## A rainbow and the sun

As Beethoven's storm (movement 4) ends and we move on to movement 5, we hear a rising scale on the flute (a rainbow?) and then he creates a simple tune that might represent the sun coming out. He uses just three notes for his tune (F, A, C). Can your children invent their own 'rainbow' and 'sunshine' theme using just one scale and three notes?



## Graphic Score

Challenge your children to make a graphic score of their final piece using simple symbols for the different weather elements. Then listen to Beethoven's version and see if you can spot his rain, thunder and lightning. Can you make a class graphic score of Beethoven's piece?

# Project 2 – Ravel's Bolero

## Maurice Ravel (1875 – 1937)

Maurice Ravel was a French composer living and working in Paris. He wrote his most famous and talked about piece in 1928 and named it Bolero. It began life as a short piece for a ballet with a Spanish feel but became much more famous when played by orchestras alone without the dancers. Bolero features just three ideas that repeat over and over and one big *crescendo* – a gradual change in volume from very soft to very loud. It became one of the most successful pieces of music ever and made Ravel very, very rich.



## Listening task

*For this task you need very large paper and art materials. Use the biggest paper you can find – lining paper or the back of wallpaper is the best option – and spread it out along the floor or a large empty space. Decide which end is the beginning and which is the end and mark 'start' and 'finish' on the paper lightly in pencil. Also have as many different colours as possible, and ready to hand. If space is limited make one big class version of this, choosing children to contribute one by one to the various tasks outlined below.*

1

Ravel's Bolero features three ingredients:

- A repeating bassline (mostly played by cellos and basses)
- A repeating rhythm, otherwise known as an ostinato (played throughout by the snare drum)
- A wandering, snakey tune

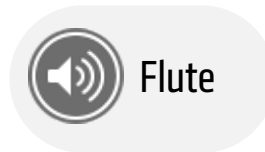
2

Listen to Bolero and ask your children to try to spot the three ingredients. Ask them to decide on one colour for the bassline, a different colour for the ostinato and a range of colours for the tune.

The tune moves across the orchestra from solo flute, through the woodwind and onto some unusual combinations of instruments before being played by full orchestra, so you will need a lot of different colour choices and combinations to represent it.

3

Listen to the 1st version of the tune played by the flute.



Ask your children to choose their colour carefully and draw the shape of the melody across the paper moving slowly from left to right. They must try to do this without taking their pen off the page and allow their hand to just move up and down with the shape of the tune.

4

Next choose a colour to represent the clarinet – the next soloist.



Listen onwards and ask the class to add this colour on top as they draw its melody. They can place this above, below or next to the flute tune.

# 5

Keep listening and challenge them to draw each version of the tune adding a new colour or combination of colours as the different instruments join. Here's a list of them in order:

Time	Instrument
0'00	Conductor Valery Gergiev prepares
0'03	snare drum begins the rhythm, violas & cellos play the bass line
0'14	flute
1'04	clarinet
1'53	bassoon
2'44	E♭ Clarinet (the 'baby' clarinet)
3'34	oboe
4'24	flute and trumpet
5'14	tenor saxophone
6'06	soprano saxophone
6'55	2 piccolos, french horn, celeste
7'42	oboes and clarinets
8'33	trombone
9'25	flutes, oboes, clarinets, saxophones
9'59	woodwinds, 1st violins
11'01	woodwinds, violins
11'51	woodwinds, trumpet, violins
12'40	woodwinds, trombone, violins, violas, cellos
13'30	woodwinds, all trumpets, violins
14'19	woodwinds, all trumpets, violins
15'03	KEY CHANGE (everyone)
15'24	back to C for ending

6

At 15'29 there is a key change. This is when the whole orchestra moves up in pitch for a short while. It feels a bit like the sun is coming out or the roof is lifting off. Ask the children to think of a clever way to represent this?

7

Finally, listen one more time. The challenge now is to draw on the bassline (perhaps along the bottom of the page) and the ostinato rhythm. Also pay particular attention to the ending.



Coda

This is known as the Coda (coda just means fancy ending). It is very different to the rest of the piece. This should be added onto the end of the artwork all the way to the right.

*When you have finished the whole piece (it lasts over 15 minutes in total!), your children will have made a graphic scores (visual representations) of Ravel's Bolero.*





# Classroom composition task – make your own Bolero!

Here's a step-by-step guide to making your own version of Ravel's Bolero with your class.

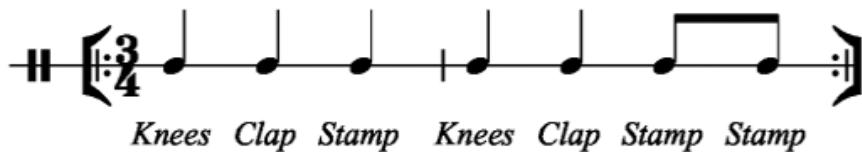
1

Begin by asking your whole class to stand in a circle. Explain to them that you are going to re-create and re-compose one of the most famous pieces of music ever written. Perhaps tell them a little about Ravel and his piece. Explain that Bolero is made from three simple ideas repeating around and around and growing louder and louder.

2

## The bassline

The first idea to get to grips with is the bassline. Teach it to your class using the following body percussion pattern:



*(By using the knees, the hands and the feet you are also helping to visualise the pitches you are going to use later – middle, high, low)*

3

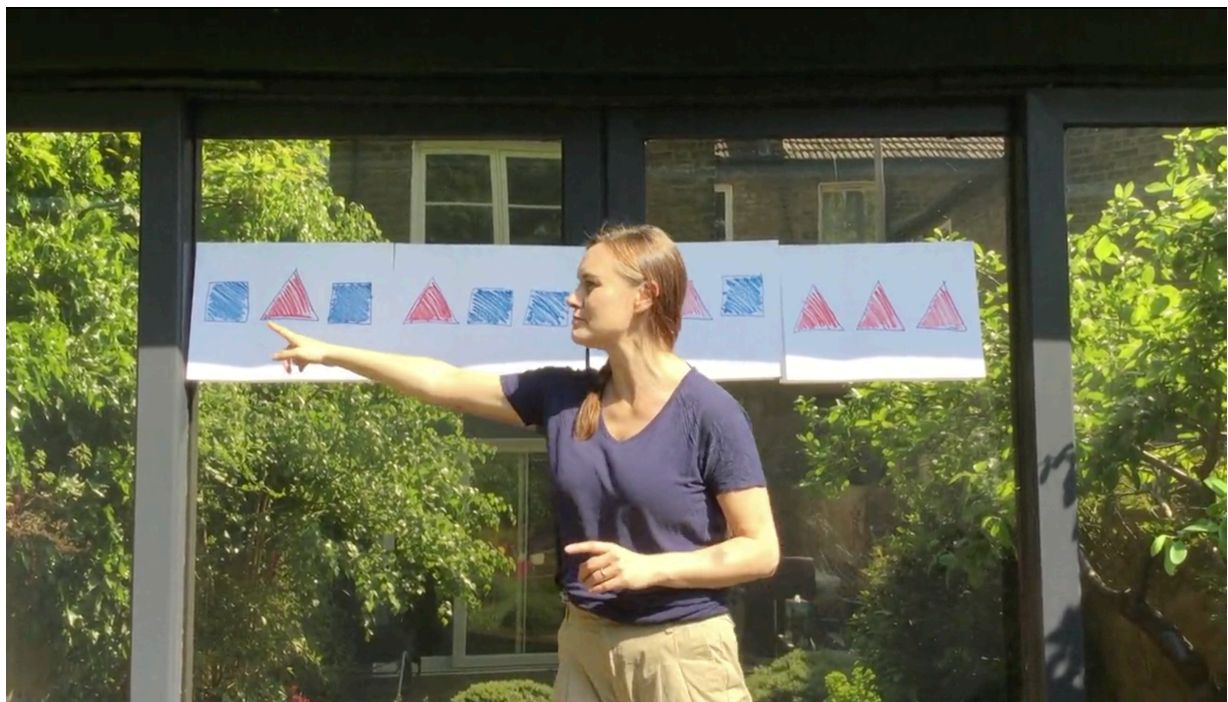
When this is strong and confident, invite children one by one to try and perform it on a xylophone using just three notes, C, high G and low G. Like this:



4

### The repeating rhythm (ostinato)

Now move onto the rhythm. Ravel's rhythmic ostinato is extremely complicated when written down but you can easily demonstrate it to your class by using this 'score'.





*Whilst reading Ravel's notation is very complex, reading the rhythm using two contrasting symbols is not. You can notate Ravel's rhythm using any two symbols or even by lining up objects across the school hall. By doing this task you are beginning the journey towards reading music. You can notate Ravel's rhythm using any two symbols or even by lining up objects across the school hall. By doing this task you are beginning the journey towards reading music.*

Slowly point to the symbols one by one and encourage the class to clap every time you point to a square and say 'triangle' every time you point to a triangle.

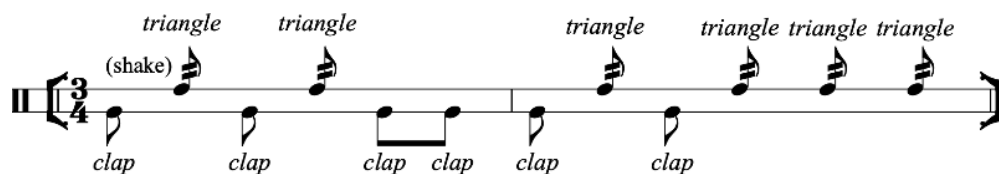
Ask a volunteer to choose an instrument to play instead of clapping. Encourage them to choose something that makes a short sound and is easy to play. A drum would be ideal.

The rhythm they are performing at this stage is this:



Practise this a few times before moving on to choose an instrument to represent the triangles. This should be something that makes a contrasting sound, perhaps a shaker.

Your rhythm should now be like this:



When your class understand these two concepts, split them into two groups as follows:

- 
- A cartoon illustration of a man with brown hair, wearing a blue long-sleeved shirt and dark blue trousers, playing a large yellow tuba. He is blowing into the mouthpiece, and stylized blue and white swirls representing sound waves emanate from the instrument. The man is wearing grey sneakers. The background is plain white.

The first system of the musical score for 'The Rose Tree' consists of two staves. The upper staff is in treble clef and contains a melody of eighth notes. It begins with a C4, followed by a G4, and then a triplet of G4s. The lower staff is in bass clef and contains a simple accompaniment of quarter notes, starting with a C3, followed by a G2, and then a G2. The key signature is one flat (Bb) and the time signature is 4/4.

21



# Taking it further

Consider adding one or more of these elements:

## The Melody

Bolero contains a wandering, twisty melody. Select a small number of children to be the melody group and give them tuned instruments such as xylophones/ glockenspiels. Challenge them to invent a very short, repeating melody that follows these rules:

- Use only next-door notes
- Begin on C, snake up and down, end on C
- Melody must short, repeatable and the same every time



While your melody group are working on this, encourage the other groups to practise their rhythms and work on their crescendo. Add this new melody on top of the repeating rhythms.

*If you are low on pitched percussion instruments encourage your children to share, or have a series of 'soloists' who improvise a melody on top of the rhythms in turn.*

## Transposition

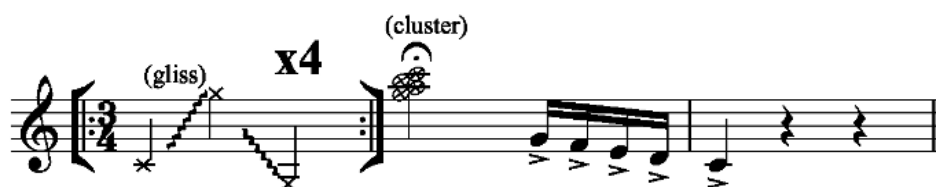
Near the end of Bolero, the whole piece shifts up by two notes (the bassline therefore moves to E and Bs). This is called transposition. Can you transpose your whole piece as well?

It might be easiest just to move the bass and rhythm and let the melodies rest at this point, and one note up might be easier than two (i.e. to D and As)

How do you signal the moment when everyone moves? Do you need a conductor? Or an audible signal such as a gong?

## Coda

Ravel adds a 'Coda' (special ending) to his piece. It looks (roughly) like this:



Can you add this onto your piece? You perhaps need to get out some of the bigger percussion instruments you may have such as djembes, cymbals or gongs, and you may need a conductor to help hold the cluster chord before everyone crashes down to a final C.



# Watch and explore Bolero on screen

The LSO has an interactive online resource called [LSO Play](https://play.lso.co.uk). We would love you to use it to help your children understand the orchestra and Ravel's Bolero.

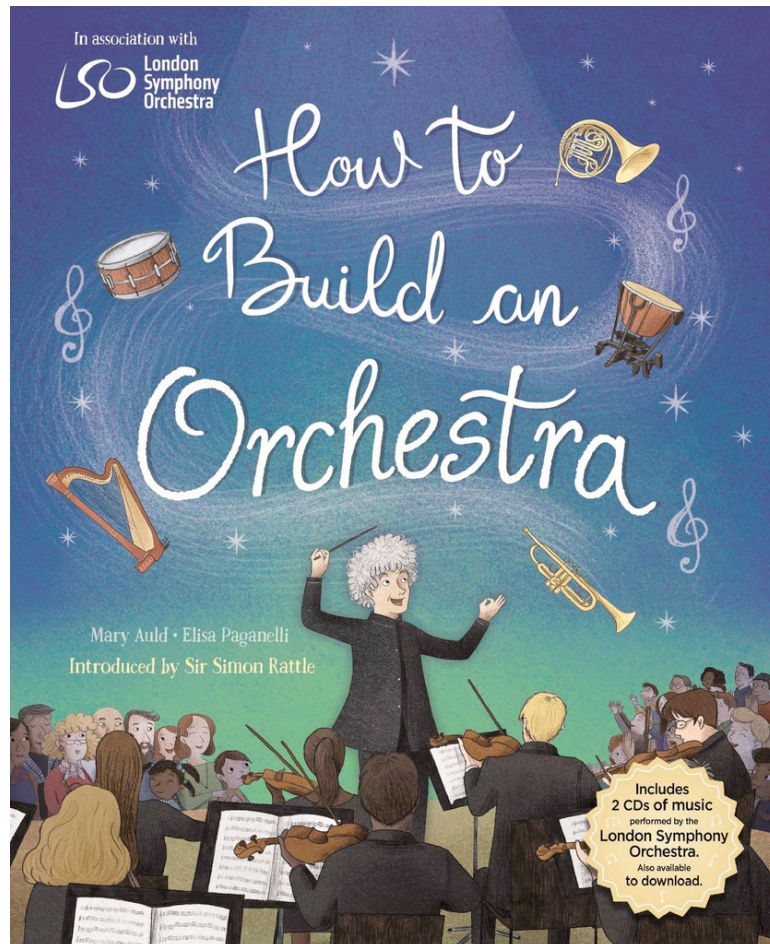
## LSO Play contains the following amazing features:

- High quality filmed performances allowing you to see the players and their instruments up close from many different angles. You can also edit the view that you see and make your own journey through the piece.
- Interviews with key players who explain exactly what it feels like to be in an orchestra and give younger players some tips on technique.
- A full guide to Ravel and his piece which explains the history of its composition and its unique musical shape as well as talking you through what's going on musically, bar by bar.
- Filmed demonstrations of children trying out the ideas outlined above.

## How to access LSO Play in the classroom:

1. Google **LSO Play** or type [play.lso.co.uk](https://play.lso.co.uk) into your search bar
2. Scroll right until you reach 'Ravel' and then select this performance
3. At this point Bolero should begin playing (its very quiet!). You'll see different images on the screen and you can select which angle/s you watch the performance from.

# How to Build an Orchestra Book



Discover everything about orchestras and their instruments with this beautifully illustrated childrens' book, produced in association with Hachette Children's Group.

This wonderfully illustrated story follows a conductor who is auditioning each instrument for his orchestra. With accompanying CDs and downloadable music, follow our conductor on his journey and uncover every detail of an orchestra.

With pictograms of a full-size symphony orchestra and information on all of the music featured, as well as a foreword by Sir Simon Rattle, Music Director of the LSO, this is the must-have book on the orchestra and its instruments for children aged 7+.