



Teachers' Pack


Zoombinis Mountain Rescue

Mountain Rescue is the long-awaited follow-up to The Logical Journey of the Zoombinis, later changed to The Maths Journey of the Zoombinis. It is an adventure program in which the user has to help sixteen little bits of blu-tak through a series of puzzles in order to help them rescue a load of little creatures called Boolies.

This software can be used for collaboration problem solving activities with children in Year 3 and above. This pack is intended to help teachers to decide whether they want to use this software with their pupils, how they are going to use it with their pupils and minimise the time teachers need to spend preparing for the use of the software in their classes.

However, we would immediately acknowledge that using this pack to prepare for the use of the adventure is a sure-fire way to spoil the fun. For us, working out how to do the puzzles, then comparing strategies with the kids, is the best bit but it is essential that any teacher who intends to use the software has a good understanding of how the puzzles work and a few ideas for how to tackle them before they let their pupils lose on it! Developing strategies for each puzzle can be a time-consuming process, and that's where this guide fits in...

What follows is a brief description of how to manage the programme followed by a step-by-step guide through the adventure. Initially the scenario is described, so that you know why you are trying to get the Zoombinis through these puzzles in the first place. Finally, each puzzle within the adventure is described in detail and some potential strategies are considered.

This pack is not really intended for use with pupils. The guide that was produced for the first Zoombinis adventure was designed to support pupils in their independent use of the software. It described the puzzles and gave pupils a few ideas about how they might tackle each one. However, this new adventure has built-in help. Just click on the for a few hints and  tips.

The Game;



First of all, you need to sign-in. To do this, click on [New Player](#) and type a name into the [Games](#) panel.

Then, just click on the [Start Game](#) button to begin working through the whole adventure.

If you have already started a game and you want to continue it, you'll find it in the [Games](#) panel.

In a new game, you will be asked to select your Zoombinis. You can do this one at a time by clicking on the attributes you want, nose, hair, eyes and feet.

Click on the [tick](#) to select the Zoombini. If you just want randomly selected Zoombinis, click on the [16](#) button to get all 16 picked for you, or [1](#) for one at a time. Click on the forward arrow when you have your Zoombinis to start the game.



In the standard game, you progress through the puzzles as laid out in this map. This map allows you to move to different parts of the puzzle and to see what level you are on. If the track is green then the going is 'Not So Easy', if yellow, then 'Oh So Hard' and is red then 'Very Hard'.

If you want to look at the map, just click on the  symbol at any point.

This map also allows you to select a puzzle in practice mode. If you want to focus on just one puzzle, or refine your thinking about it, click on the [Practice](#) button, select the level of difficulty and then click on the puzzle you want to try. You'll get the required number of randomly selected Zoombinis to work with.

The Adventure

The premise of the game is simple enough. The Zoombinis escaped Zoombini Island in the first adventure and are now living happily in Zoombiniville. One stormy night some of the Zoombinis, who had been out picking strawberries, took shelter from the rain in a cave. The entrance to the cave was suddenly closed when its mechanism was struck by a bolt of lightning. However, one Zoombini escaped and went to tell the rest of the village who feared that those that were trapped inside might be being terrorised by the Boolies, mysterious creatures that were said to inhabit the caves.

A rescue party was sent out and had to battle through several difficult and dangerous obstacles, such as the Turtle Hurdle and the Aqua Cube. Once through they managed to open the door to the cave and found some of the trapped Zoombinis but also found that others were still missing, perhaps they had been captured by the Boolies!

A new, smaller rescue party was formed. They had to choose which route to take through the caves and they knew that each route would have its own hazards to cope with. Once they had struggled through these hazards, they found the missing Zoombinis in a village occupied by the Norf. The Norf were generally friendly creatures, but could be a bit demanding.

When their friends told them what happened in the cave they were surprised to hear that they had indeed bumped into the Boolies, but the Boolies turned out to be friendly! There were strange little purple creatures, some happy and some sad but all of them liked to stick together! The Boolies told the Zoombinis all about how the terrible storm of the night before had flooded their village, Booliewood and they all got washed away. Even the Mayor of the town was missing and they really didn't know what to do. Without the Mayor to organise them, they couldn't organise themselves and work out how to get home.

Hey, guess what, the Zoombinis decide to help the Boolies get back to Booliewood and so continue up the mountain, helping as many Boolies as possible to get home in the process.

There are many missing Boolie, and it'll take a good many rescue teams to help all of the Boolies to get back home. How many depends on how good you are at guiding the Zoombinis through the puzzles. Good luck!

Turtle Hurdle

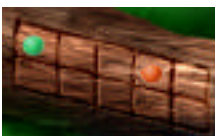


At the Turtle Hurdle you simply have to place the Zoombinis in the right order, one on each turtle. The order is determined by the order of attributes on the legend on the tree trunk. Here, Eyes are the determining attribute and all the Zoombinis with glasses go first.

If you place a Zoombini on the wrong turtle, it will be flipped off and onto the right one, but don't do this too many times, with each mistake the jetty gets weaker and if it collapses, some Zoombinis might get left behind.

In harder levels the legend contains less and less information and also involves combinations of attributes. At this point it is easiest to place the Zoombinis that are described in the legend first. It is then sometimes possible to work out which Zoombinis should fill in the blanks by counting the number of spaces. Where this isn't possible, the only option is to try a likely Zoombini on a likely turtle to see what happens. If you're right, great. If not, at least you learn where it should have gone. This usually gives you all the information you need to place subsequent Zoombinis.

When you start working with combinations of attributes you need to try to figure out the pattern within the pattern. Look at the top row, the primary pattern. Place whichever Zoombini you can based on this attribute and then see if you can sort all Zoombinis with that attribute according to the secondary attribute. In other words, the order of Zoombinis with the same primary attribute is determined by the secondary attribute. Once you establish this pattern you can apply it to each sub-set of the primary pattern.



Oh So Hard, still only 1 attribute, but the legend misses some of the details out



Very Hard, the order of primary attributes is incomplete and there is a second attribute to order the Zoombinis by

Pipes of Paloo



The Pipes of Paloo is another way of matching Zoombinis by a specific attribute.

You need to place a Zoombini on each pedestal. Where pedestals are joined via a pipe, the attribute that those Zoombinis should share is indicated via a simple icon.

When you have placed all the Zoombinis, click on the stop-valve near the outlet at the top of the screen. All those Zoombinis that don't match up get left behind.

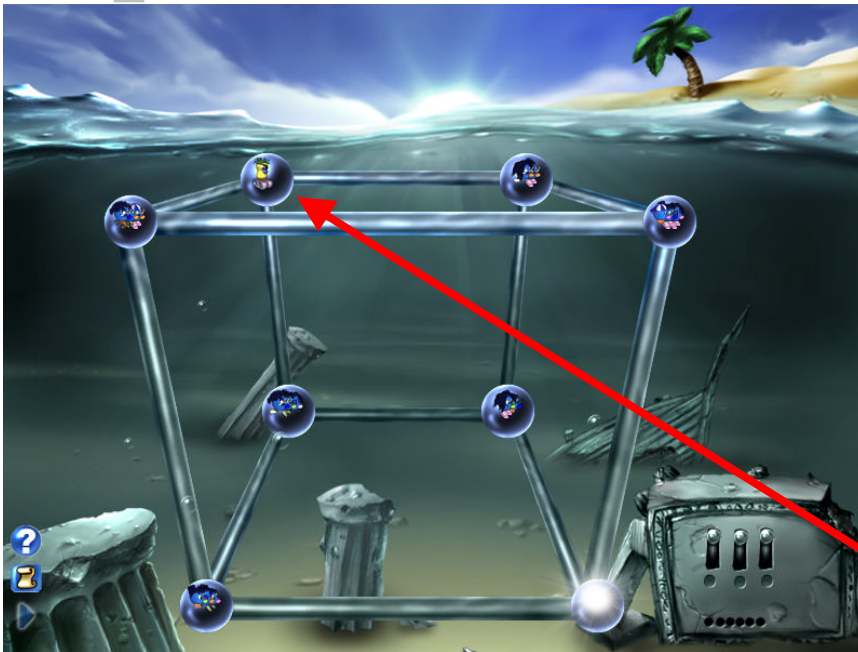
At first it is usually easiest to simply make as many pairs as you can and place them on the pedestal. More often than not you'll end up with a pair that don't match to the final set of pedestals and then it's just a matter of placing one of them and shifting other Zoombinis that can be placed in the empty space that is left. Eventually, you'll create a new space that the remaining Zoombini can fill properly. It's not very scientific, but it always works in the end.

In harder levels, the pattern of pipe work becomes much more complex. Here it's a question of planning a little more carefully. When the going is Oh So Hard the first Zoombini links to several others. Here it is useful to look for a Zoombini that shares the required attributes with several other Zoombinis first. Picking the wrong Zoombini at this point is a pain. Try to complete the first link on each pipe first and then complete the other spaces as before.

When the going is Very Hard the pattern of connections becomes very complex and the strategy needs to revert to the original, try it and then fiddle around...



Aqua Cube

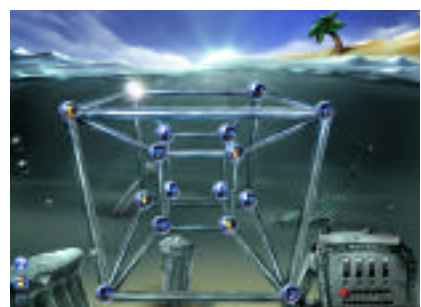
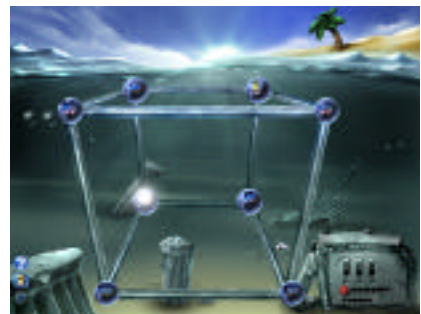


Once the Zoombinis have been sucked into the pipes at Paloo, they get washed all the way down to the Aqua Cube. A Fleen seems to be stuck there, too. You have to control the Aqua Cube using the levers at the bottom left of the screen to release the Zoombinis but leave the Fleen where it is!

After a very quick bit of experimentation to establish what each lever does, it's a straight-forward process to solve the puzzle. When the going is Not So Easy there are three levers, one moves the ball of light side to side, one moves it up and down and one from front to back. Using just two levers allows you to ascertain which does what, record this as you go. Now simply steer the ball of light around the box without hitting the Fleen. Try to make sure every move counts as you only get a certain number of goes and if you release the Fleen it will chase away all the Zoombinis you have already saved.

When the going is Not So Easy, the Fleen is always at least three moves away from your starting position, but when the Going is Oh So Hard, it can be within one or two moves. This means it is possible to release a Fleen before you have the directions for each lever. To try to help you get around this problem, they've added a 'Warp' button to the control panel. Click on the Warp button and then quickly click on a combination of 2 or more levers before the time runs out. This means you can move several steps in one go.

When the going is Very Hard an inner cube is added, along with another lever to control diagonal moves. Using the Warp button here proves very useful!



Rescue Point 1



At the first rescue point, all you have to do is gather enough Zoombinis together. If you get enough, their combined weight on the door mechanism opens the door and frees some of their friends.

However, they soon learn that not all of the Zoombinis have been rescued.

Perhaps the remaining Zoombinis had been trapped by the Boolies, who were said to live in these caves!!! A new, smaller rescue party must be formed. Only 8 of the bravest Zoombinis should continue to look for the others in the dark caves. But which route should they choose?

The route to the left will take them through two more puzzles (not that they know that yet, though!), Beetle Bug Alley and Chez Norf. The route to the right will take them through Bubble Bumpers and Magic Mirrors. Which presents the greatest peril? Well, you won't know that 'til you try, so pick a route by clicking on the arrows on the floor of the cave and get on with it!

Beetle Bug Alley



If you take the route to the left, you come to Beetle Bug Alley. Here the idea is simply to get all the coloured scarab beetles onto the right coloured circles.

You can see here that the dark blue and purple scarabs need to be swapped over.

You can move the beetles around using these controls on the cave wall. Each control swaps the beetles as indicated. As you can see, swapping the blue and purple beetles here is easy as there is a button that will make exactly the right move, but it isn't always that easy! Sometimes you have to work out how to position the beetles in order to swap just the two you want to swap, and then move them all around until they get back to their respective places. If you were ever any good with a Rubick's Cube or those little puzzles where you scrambled all the numbers to 15 and then had to get them back in order, then you'll feel right at home. For the more classically trained, try the Towers of Hanoi as a principle instead.

When all the beetles are positioned correctly, click on the lever beside the cave doors and let four Zoombinis through. Now try the whole thing again to get the next set through!

When the Going is Oh So Hard or even Very Hard, the process is basically the same, it's just that the beetles and the controls are more complex. Again, try to identify pairs of beetles that could be swapped and then work out how you position them in order to swap them over. Sometimes this involves removing one of the pair, rotating the group until the first of the pair can be swapped with the other, and then rotating again until the second one can be put back in place.



Chez Norf

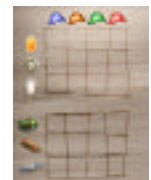


Once through the Beetle Bug Alley, the Zoombinis find themselves in the village of the Norf, who are friendly, but demanding.

The Norf will let the Zoombinis continue on their journey if the Zoombinis feed them their perfect lunch at Chez Norf!

The trick with the Norf is to ask them what they want first. Do this by clicking on them. They don't order exactly what they want, but they will give you clues like; "I hate sandwiches" or "The people over there don't like milk" and so on. On their own, these clues don't really help, but added together, you can't fail. Click on each Norf and when it gives you a clue, use the order pad on the wall to record what it tells you...

Click once and you get a tick on the matrix, twice to get a cross and three times to get a question mark.

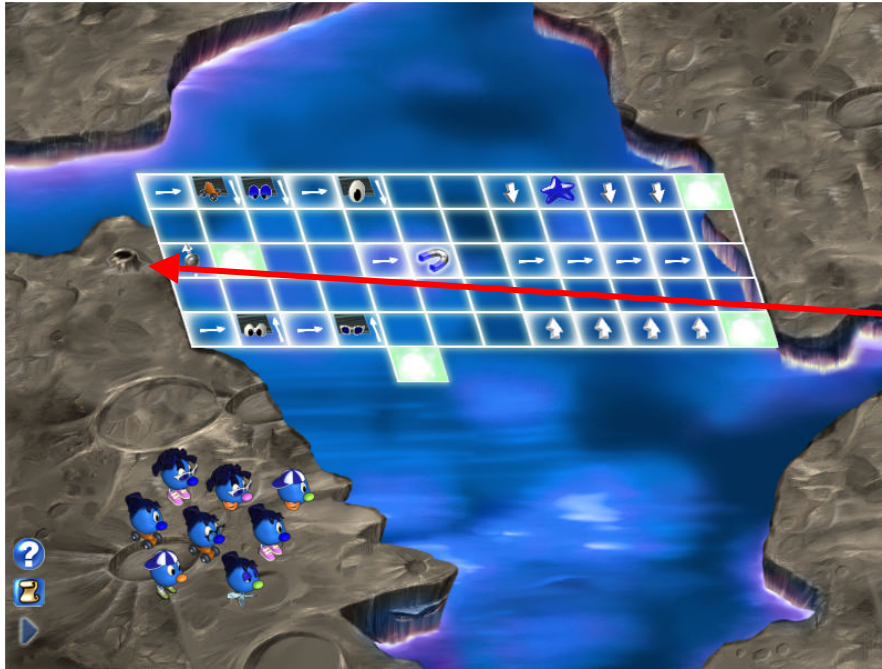


When a Norf gives you a clue, make sure that you record the positive and the negative remarks. A comment like "I'm the only one that wants salad" puts a tick on that Norf's choice of meal and a cross in all the others. It also excludes the other dishes in that Norf's order. By the time you have done that you will be able to select the right food and drink from the fridge, put it on a tray in front of the right Norf and then hand the full tray to him by clicking on the tray, and then on the Norf that wants that meal! If you haven't been able to complete the whole matrix, make an educated guess and see what happens, you do have a few spare trays to use, but record what a mistake has taught you on the pad.

At harder levels, the principle is the same, but there are more variables. When the going is Oh So Hard, there are three courses to offer and when the going is Very Hard there are more Norf to cater for, too. As long as you record the information they give you as completely as possible, this puzzle is solvable every time.



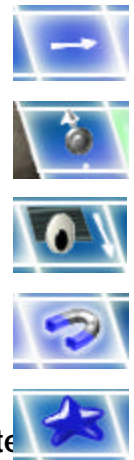
Bubble Bumpers



If you take the route to the right, your first hurdle is to get the Zoombinis across the Bubble Bumper. Pick them up and place them on the bubble spout on the left of the maze.

Trapped in a bubble, watch the Zoombini float across, or to their doom! (Well, back to the rescue point, anyway)

This could be perilous as each Zoombini's attributes determine its route across the maze. For instance, any arrow will control the movement of any Zoombini, but watch out, they can change direction between goes. An arrow with an attribute on it, like a single eye, will only affect the direction of a Zoombini with that attribute. A magnet will cling onto any Zoombini that floats over it but you can bump a Zoombini off a magnet by sending another Zoombini in after it, though obviously the next Zoombini will get stuck instead. The other way is to send another Zoombini over a star with the same colour as the magnet, this way they both get through!



The trick here is to plan out at least your first few Zoombinis. Follow the route try to identify which attributes will lead to catastrophe. Pick a Zoombini that can travel safely and pick it up and place it at the top of the group. Now trace the route again, remember that some arrows will change direction. Again, identify which attributes shouldn't go next, find a Zoombini that lacks these attributes and place it next to the first. You'll often begin to spot a pattern at this point, which might show you that some Zoombinis either have to travel on odd or even goes. Build this into your plan. Try a Zoombini or two out to test the theory.

At harder levels the same principles apply but the mazes become increasingly complex. Sometimes it is inevitable that you loose a Zoombini in order to work out how the maze works!

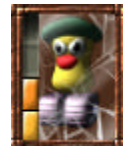
Magic Mirrors



The next puzzle is posed by the Magic Mirrors. Each set of mirrors contains one Fleen and several reflections of that Fleen. The Magic part is that each reflection is distorted in some way. You have to find the real Fleen in each set of mirrors.

You do this by firing the cannon at a mirror and breaking it.

When you break a mirror it either releases the Fleen and you move on, or it shatters the reflection and reveals its secret. When a reflection breaks it shows you how many attributes the reflection shares with the hidden Fleen. By studying every other Fleen in the set you can find the real one and hit it with your second shot. The number of matching attributes is shown on the scale at the side of the cracked reflection. Be methodical about matching attributes, go through the remaining Fleens one by one. Even when you think you've found it, check the others anyway. Leaving the mouse pointer (hand) over the one you think it s to mark it until you've completed the check.



When the going is Oh So Hard, the format changes to a single, large grid but the principle is the same. Break one of the mirrors with the cannon. It will show how many of its attributes match the real Fleen, but this time, several of the other images will match that number of attributes. The trick here is to work through the grid as before. When you find a match, try it. You might find that this one



is a reflection, too. See how many of its attributes match the real Fleen. Now you have two images to match. One strategy is to continue to look for matches with the original image. When you find one, then cross check it with the second image. If you find another match, try it. There are other strategies but this one works pretty much all the time. When the going is Very Hard, the grid is bigger again, but the process is the same.

Rest Place 2



Finally, the Zoombinis battle their way through to a snowy cave where they find the rest of their friends. Their friends tell them a story of how they had been rescued and found their way to these caves just above the Norf village.

It turned out that these last few Zoombinis had got lost in the caves and had bumped into some strange purple creatures. Some of these creatures were happy and some appeared to be sad, but they were friendly and liked to stick together. These creatures turned out to be the (mistakenly) dreaded Boolies

As the rescue party listened to this story, one of the Boolies explained why they had been hiding in the cave. It seemed that the Boolies had lived in a village all of their own, called Booliewood. The terrible storm had forced the poor Boolies to scatter and in the panic their mayor, the Grand Boolie-Boolie, had gone missing. Without their leader, they had no way of organising themselves and making their way back to Booliewood.

Well, the Zoombinis are helpful little creatures, and they agreed to help the Boolies get back to Booliewood. A new rescue party was formed and they set off, with a few of the Boolies in tow. But what puzzles were to follow?

Snowboard Gulch



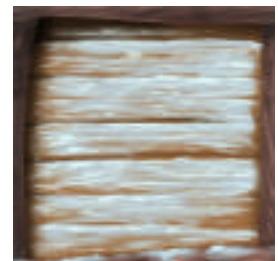
The first challenge to face this brave band is Snowboard Gulch. The Zoombinis have to get safely down the snowboard run without bumping into any Norf's on the way down.

The signs on the board seem to give a clue as to the route that each might take, and who should go first.

At first, any Zoombini will travel safely down the run. Different Zoombinis will take different routes, and which route each one takes is determined by their attributes. The information on the notice board will tell you which attributes determine direction. The first few Zoombinis down the run will help you confirm your ideas about which route each will take. Suddenly three Norf will appear on three of the runs. The trick now is to pick a Zoombini that will take the forth, empty route. If you get it wrong, it isn't the end of the world, since the Norf are fairly forgiving creatures, but don't test their patience too many times!

When the going is Oh So Hard, the puzzle gets a little harder, though. The notice board is covered in snow and the only way to find out which route each Zoombini can take is to try a few out. The trick here is to look for similarities and differences. Try getting two or three Zoombinis that only differ in small ways as the first few down the run. This can often give you clues to attributes that determine direction. If the Zoombinis end up in the same place, then you know that the attribute they don't share is not a determining factor, if they end up in different places, then it is.

When the going gets Very Hard, combinations of attributes become determining factors. The strategy is similar, however. If you manage to complete the run, the board will reveal its information. It's amazing how often you can succeed at this puzzle and still not know what the board will actually show!



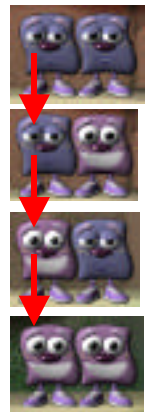
Boolie Boggle



The last challenge to face our intrepid rescuers is to try to make all the Boolies happy! Now it might seem implausible, but apparently, if two Boolies are standing next to each other and one of them gets hit by a large steel ball, it changes their mood and can even change the mood of the Boolie next to it, too.

To send the pinballs in this game down one of the runs, simply click on the Boolies that you want to target. If you hit a sad Boolie, it will flip over and become happy. If you hit a happy Boolie it will become sad, but it will also change the mood of the Boolie next to it, whatever mood it happens to be in. The pinballs come in groups and you have to direct the sets of pinballs to the groups of Boolies where they will do most good. For instance, if you had two sad Boolies, hitting them with three pinballs (in combinations of 1 and 2, or 3 pinballs at once) will change both happy (they'll go from; Sad-Sad to Sad-Happy to Happy-Sad to Happy-Happy). Because these changes are entirely predictable it is possible to work out a pattern of change that allows you to make the most of the pinballs you are given.

When the going is Not So Easy there are two Boolies on the end of each pinball route. The pattern of change is shown here. All you have to do is find the set of Boolies on the puzzle that match one of the images here and count how many steps it will take to reach the bottom. Now all you have to do is send the appropriate number of pinballs towards this pair of Boolies and make them happy again! When the going is Oh So Hard you get groups of three Boolies and when the going is Very Hard you get sets of four but the principle remains the same. You can build a pattern that allows you to decide how many pinballs to send to each group. Since I'm being nice, here is the pattern for three Boolies but you can work out the pattern for four for yourself!



Booliewood



Well, you've made it...
..CONGRATULATIONS!

You've arrived at Booliewood and the few Boolies that you've helped home are naturally very pleased! As you might have guessed, not all the Boolies have been rescued and you're going to have to take another group of Zoombinis through!

Click on the Map button and go back to Zoombiniville to start off a new batch of rescuers or to one of the rescue points if there are at least 8 Zoombinis waiting there. Each time a team of Zoombinis gets right through the whole puzzle you'll help a few Boolies get home, too. As the population of Booliewood increases, the Boolie totem-pole fills up and as the totem fills up the Boolies get happier and happier. Doesn't it give you a sort of lovely warm glow?

The only down side is that each time you succeed, the trail gets a little harder and just as you think you've cracked one puzzle it changes next time. This guide may explain the puzzles and give you a few ideas about how you could tackle them, but it can't ensure that you can solve every puzzle every time. That will take a little more time and effort. Where ever possible, try to work with a friend, you'll be amazed how much easier developing a strategy is if you have to try to explain your ideas to someone else.

Good luck, have fun.