Design Layers II

Among the frame animations included with IntelliTools Classroom Suite® are sets of kids facing forward, back and from the side. Maybe you've used some of these animated figures. But, have you tried stringing them together? By connecting these frame animations, you can produce complex IntelliMations. For example, you could have a kid go off into the distance, turn, pass behind an object, turn again and come back. All it takes are some simple tricks with **Design Layers**!

Design Layers let you treat an activity page like a three-dimensional stage. When you bring in clip art or a frame animation, it has a default **Design Layer** of 0. If you add a second frame animation, it will go in front of the one you added earlier, by default.

But you can give it **Design Layer** numbers greater than or less than 0, to specify what will be on top when the two objects interact. For example, if you added the second object and set its **Design Layer** to -1, it would go behind the first object you added. If the first object is scenery like a tree or furniture, and the second is a frame animation of a walking figure, the effect is as if the page had depth, and the walking figure is farther away than the scenery.

In this tutorial, we will learn to use **Design Layers** to create complex animation effects. Besides learning new techniques step by step, we'll spend time learning to analyze a complex IntellMation to understand how the effects were achieved. If you have never heard of or worked with **Design Layers**, work through the Design Layers I tip before you try the tricks in this tutorial.

Part 1: Understanding Design Layers

Clip Art As Scenery

Open the example activity, **Behind The Tree**. It already has a walking figure, a girl, at the left side of the page. In the center is a clip art tree. Both objects were brought in with their default settings, so both begin with **Design Layers** set to **0**. There is already a two-point IntelliMation on this page. Because the **Page Action** is **Play IntelliMation**, the animation plays as you open the page. Notice that the girl walks in front of the tree. She was brought in second, so even though both objects have a **Design Layer** of 0, by default the latest added figure, the girl, goes in front of the tree.

Now open the **IntelliMation** timeline, by choosing **Create Intellimation** from the **IntelliPics Studio** menu or click **Add IntelliMation** if you have the **Authoring Toolbar** open. **Click 0 seconds** to be sure you are at the beginning of the timeline. **Control-click** the tree to open its **Properties**. Notice its **Design Layer** is still 0. Click **OK**. Use the **Play** button on the timeline, or click the **Walk!** button. Notice that this time when the animation plays, the girl walks behind the tree. Wow, we didn't change any settings! What happened?

Again click **0 seconds** to go to the beginning of the animation. This time, control-click the girl to open P**roperties**, then click **OK**. Notice that you haven't actually changed **any** settings. Again click the **Play** button on the timeline. Oops, the girl is walking in front of the tree again! What's going on?

Conclusion: This experiment tells you that if two objects have the same **Design Layer**, various operations such as opening **Properties** to do any editing can cause them to pop forward and back, perhaps wrecking the effect you are trying to have in your animation. But there's a simple way to take control of this situation: Set specific **Design Layers** to make sure objects follow the traffic pattern you have in mind.

Tip 1: It's a good idea to get in the habit of **clicking 0 seconds before making changes** to IntelliMation, if you want your changes to affect the animation from the beginning. If you want a change to occur later, be sure you are on the correct timepoint before making the change.

Design Layers Control What's In Front

Again click **0 seconds** to go to the beginning of the animation. **Control-click** the girl, and change her **Design Layer** to **-3**. Control-click the tree, and make sure its **Design Layer** is a larger number. If the girl is set to -3, then -2, 0, 4, 25, or any number larger than -3 will put the tree in front. Check the **Design Layer** settings at 5 seconds also, again setting the girl's **Design Layer** lower than the tree. Run the animation again. Did the girl walk behind the tree?

The final test: Go to **0 seconds**, control-click the girl to open **Properties** again, and click **OK**, just as you did before. Run the animation once more. Did the girl still walk behind the tree? This time **Design Layers** settings are controlling the interaction, so opening the **Properties** of the walking figure won't pop the girl in front.

Now It's Your Turn!

Challenge 1: Make sure you are on **0 seconds** on the timeline. Add another side-view moving figure from the **Frame Animations** category of the **Picture Library**. There are several choices, including the boy, the girl and the boy in wheelchairs, and the skating boy. Flip the new figure so it faces to the left. Place it on the right side of the page at 0 seconds , and past the tree to the left at 5 seconds. Now adjust the **Design Layer** settings of this new figure so that it goes **behind** the tree but in **front** of the girl.

TIME TO SAVE! Be sure to choose **Save as Activity**. Call this activity something like "Two Behind The Tree", to distinguish it from the similar example activity.

Challenge 2: Make sure you are on 0 seconds on the timeline. Add the elementary or high school from the **Picture Library Buildings** category. Place it on the green area behind and to the right of the tree, partially overlapping the tree. Adjust its **Design Layer** settings so that it is **behind** the tree, and both **moving figures pass in front of it**.

TIME TO SAVE! Be sure to choose **Save as Activity**

What About The Arrange Tools?
Now that you know about **Design Layers**, what the **Arrange** tools do is much easier to understand. **Control-click** either the girl or the tree, and note the **Design Layer** you have set for that object. Click **OK**. Now, with the object still selected, use the **Arrange** tools to **Bring Forward** (not Bring To Front). Control-click that object again and check the **Design Layer** setting.

Bring Forward changed the setting by **adding 1**. Click **OK**, and this time use **Bring To Front**. Again check the **Design Layer** setting. **Bring To Front** changed the setting to **100**, the highest possible number! Similarly, **Send Backward subtracts 1** from the **Design Layer** setting, while **Send To Back** sets it to **-100**, the lowest possible setting.

If you add an object that needs to be behind everything else, you could either use **Send To Back**, or open **Properties** to set its **Design Layer** to **-100**. You could use **Bring To Front** for some piece of scenery that should be in front of all the moving figures in an **IntelliMation**. But it's probably easier and more precise to set the **Design Layer** to a specific number in **Properties** than to try to adjust it using **Bring Forward** or Send **Backward**.

The Results Of Our Experiments

1. We have learned that setting specific **Design Layers** for clip art used as scenery and for moving frame animation figures controls precisely which one passes in front of the other in an IntelliMation.

2. In this way we can use **IntelliMation** on a page to create scenes with a sense of depth, and we can control the location of the items in the scene in three dimensions. Now let's take it to the next level!

*Take A Break! You've earned it! *

Part 2: The Page As A Stage

A Complex IntelliMation

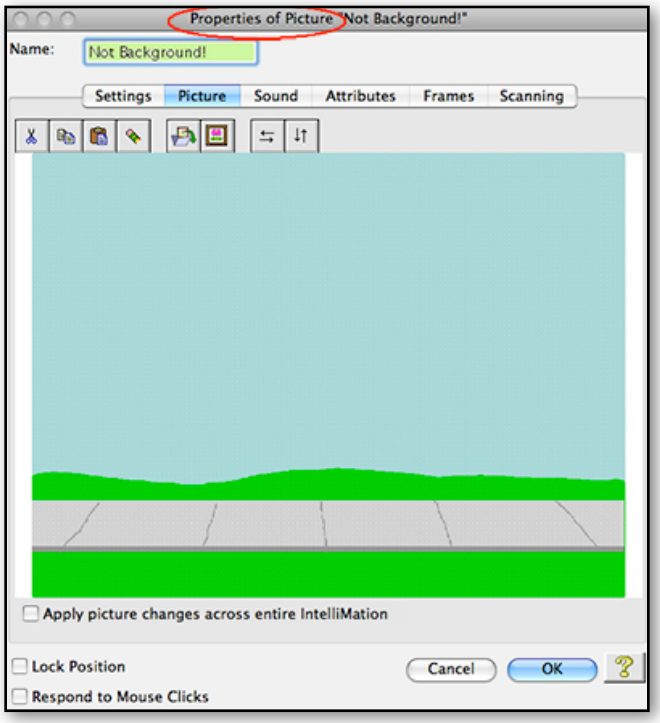
Close the **IntelliMation** timeline, then go to the **next page,** using the page arrow or Next Page from the Pages menu. A new **IntelliMation** plays. The girl walks down the sidewalk, passes behind the tree, turns to face you and walks toward you, turns to the side to walk past the tree, turns with her back to you to walk away from you toward the sidewalk, turns to the side and continues along the sidewalk to the left, and finally disappears from the scene. As you can guess, this complex **IntelliMation** actually uses three different frame animations of the girl strung together. It also uses a hidden trick we will learn next.

Tip 2: Close the timeline before going to a page which should have IntelliMation play as the page opens. It won't play automatically with the timeline open. However, if you don't want the animation to play, for example when you are trying to edit, leaving the timeline open is one way to prevent the animation from playing.

Background? Or NOT Background!

Open the **IntelliMation** timeline again and click **0 seconds** to begin our experiments with this new animation. We want to check out the background of this page, but DON'T open **Page Properties** by control-clicking in the picture. Instead, go up to the **Pages** menu and open **Page Properties**. Click the **Page Background** tab, and look at the picture in the window. Are you surprised that it's blank? Where is the picture of the sidewalk and sky that we can see behind the tree clipart and the frame animation? We'll have to investigate further. For now, click **OK** to close **Page Properties**.

Go up to the **Edit** menu. Scroll down to **Select Object** to open the objects list, and choose the first one, **Not Background**! Also on the **Edit** menu, choose **Properties...** Look at the title of the dialog that opens: **Properties of Picture "Not Background!"** That means we're examining the **Properties** of a floating picture, NOT of the page background. Now click the **Picture** tab. Aha! There is the sidewalk picture! Although it covers the entire page and behaves like a background, the image of the sidewalk, grass, and sky really is a floating picture (clip art), just like the tree.



Tip 3: It's convenient to control-click the page to open **Page Properties**, but not always the best way. If a full-page picture or even a smaller bit of clip art is on the page where you clicked, you will open its **Properties** window instead of **Page Properties**. Get in the habit of checking the top of a **Properties** dialog to see what kind of **Properties** you're looking at. Also remember that you can select **Page Properties** from the **Pages** menu.

Click the **Settings** tab, and notice that **Design Layer** is set to **-50**. That's not all the way back, but it is behind most other objects. Click the **Scanning** tab, and notice that this picture is set so it won't be picked up on a scan. **Respond to Mouse** is also unchecked. Users won't be able to interact with or move this picture, yet it is still separate from the real background (**Paint**) layer. How would such strange settings for a picture be useful in complex **IntelliMations**?

Creating A Backstage Area

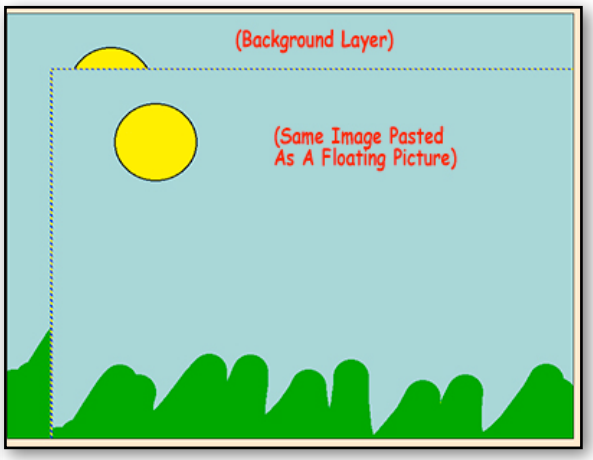
The answer is, the floating picture is serving the same purpose as the panels that make up the set for a stage play. On a real stage, scenery and actors can hide out backstage until they are needed. There is a way to create a backstage area on an activity page, and it's a great place to hide things without deleting them. You'll need to be able to do that to string animations together successfully.

Here's the trick: Instead of loading a full-page picture as a background, load it as a **floating picture**, using the **Insert Picture From File** command. Position it to cover the entire background, and remove the checkmarks from **Automatic Scan**, **Step Scan**, and **Respond to Mouse**. Then set the **Design Layer** for a fairly large negative number. I use **-50**, just because it's easy to remember.

Tip 4: The **Picture Library Backgrounds** category has full page pictures that make good stage sets. But if you try to load these as floating pictures using the **Insert Picture From Library** command, they still go into the **Background** layer. To load them as floating pictures, use the **Insert Picture From File** command, go into the **Pictures** folder in the Classroom Suite **Media** folder, go into the **Backgrounds** folder, and choose your picture.

The picture then acts like the stage set, the part the audience sees while viewing a play. That leaves all those **Design Layers** back to -100 for the backstage area. The picture acts just like a background, except that you can hide things behind it and bring them out when needed, just by changing their **Design Layer** settings to less than or more than -50. And of course there are 150 layers in front of the stage set, from -50 to 100, for all the frame animation actors and clip art scenery that will be onstage.

Tip 5: There is a way to turn a page background into a floating picture. This would let you use a picture background created in **Paint** mode by a student as a stage set! While in **Design** mode, open **Page Properties**, click the **Picture** tab, and click the **copy** button. This puts the background picture onto the clipboard.



Click **OK** to close **Page Properties**. Choose **Paste** or type **Control-v**. The background image will be pasted as a floating picture. You'll still see the same picture on the page background. Open **Page Properties** again and clear the background, then close **Page Properties**. Move your floating picture into position, give it a **-50 Design Layer**, and take it off **Scan** and **Respond To Mouse**. Click **OK** and your stage set is complete!

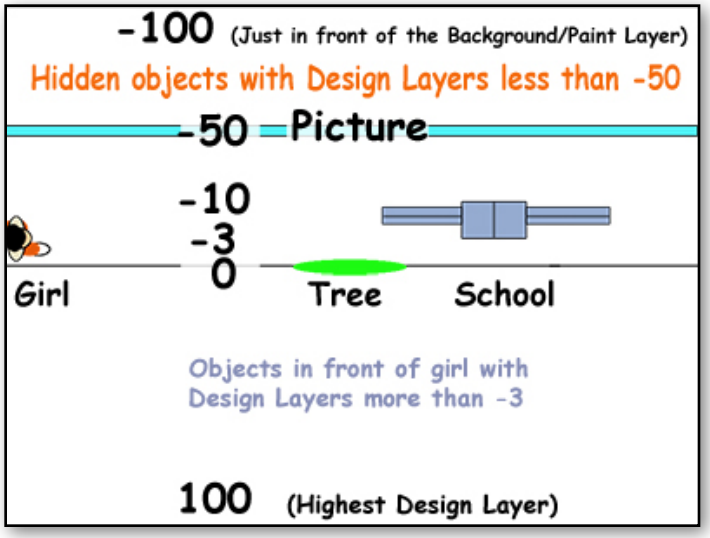
Stringing Frame Animations Together

Let's take a closer look at this complex animation and see how that stage set helps create the final effect. You've probably noticed that there are side, front, and back views of several of the frame animations in the **Picture Library**. Frame animations with these three different views include a boy and a girl in wheelchairs, a walking boy, and the walking girl used in this animation.

In the next section, we will learn how to string these different views together within a single IntelliMation and use the stage set picture to hide and show them as needed. That technique, combined with the scenery and **Design Layers** tricks we learned earlier, will enable us to create complex animation sequences with ease.

Looking Behind The Scenes

Be sure you still have the IntelliMation timeline open, and that you are at **0 seconds**. Again go to the **Edit** menu, scroll down to **Select Object**, and look at the list of objects. All the objects on the page at this timepoint are listed: **Not Background!**, our stage set; the **elementary school** and the **tree**, our clip art scenery, the **Walk!** button, and something called **walkgirlside**. That's the frame animation of the walking girl we've been using, and the first one in used this animation sequence.



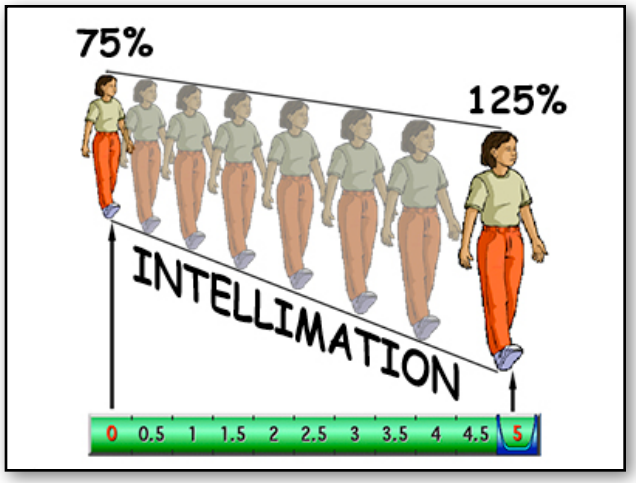
We can choose any one of these objects, and then open its **Properties** from the drop-down menu under **Edit**. Open the **walkgirlside** object's **Properties**. Notice that her **Design Layer** is set to **-3**.

Now choose the **tree** from the list of objects, open **Properties**, and you see that the tree is on **Design Layer 0**, so it is in front of the girl. Next, choose the **elementary school**, and notice that its **Design Layer** is **-10**. It's in front of the sidewalk picture serving as the stage set, but behind the walking girl animation and the tree. That's why the girl goes behind the tree, but in front of the school. If we could look at our stage from above, it might look something like Diagram 1.

Tip 6: Once you start building complex animations, with scenery and a stage set, you often need to select an object that is behind something else. From the menu bar, use the **Edit-->Select Object** option to do that. Then, if you need to change settings, using the **Edit-->Properties...** option makes your job much easier.

Now click **5 seconds** on the timeline. At this point, the girl has just turned to face you. Again go to **Edit--->Select Object** and look at the list. The stage set, clip art tree, and button objects are still there. A new animation is listed, **walkgirlfront**. That makes sense, because we can see **walkgirlfront** on the page. The **walkgirlside**

Tip 7: Did you notice that only **0 seconds** and **5 seconds** were marked red on the timeline, to create an IntelliMation of the girl crossing the page? You don't need to open every timepoint, and in fact you should try to use as few points as possible. Only open a point if you need to make a



Let IntelliMation do the work for you between key points. It will calculate all the "tweens" so that your frame animation changes size smoothly.

animation is also still listed, yet now we can't see her on the page. Somehow she has become invisible.

Analyzing The Action

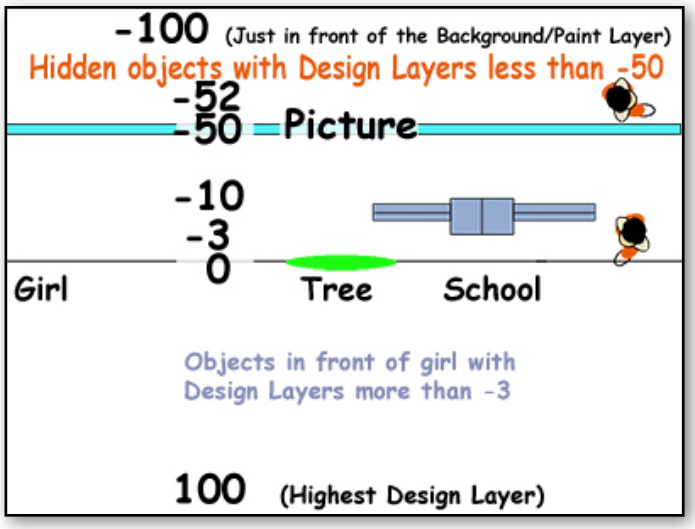
Let's continue our investigation, and try to understand what we are seeing. Choose **walkgirlside** from the **Select Objects** list under **Edit**. Notice that you can see her selection outline, like a ghost, behind **walkgirlfront**. Keeping **walkgirlside** selected, choose **Edit-->Properties**. Aha! Her **Design Layer** has been **changed from -3 to -52**. That's behind the stage set picture, which is at -50, so **walkgirlside** can't be seen by the audience at this timepoint. She's hiding backstage!

Why Not Just Delete?

But why not just delete **walkgirlside** at 5 seconds, and bring in **walkgirlfront** at that point? If you did that, **walkgirlside** would walk in place in her original position on the left as the animation ran from 0 to 5 seconds, then disappear, as **walkgirlfront** comes into the scene on the right. In order to signal to IntelliMation that you want **walkgirlside** to cross the page during the first 5 seconds, she has to be on the page and in position, in this case on the right side of the page, at 5 seconds. IntelliMation then calculates each position where the girl should be between 0 and 5 seconds, in order to move smoothly across, and also flips through the frames that make her move her legs and arms.

Tip 8: You've learned to use **Design Layers** to control what's in front when you set up an IntelliMation. You also can change the **Design Layer** settings at later timepoints to make objects go behind something they previously were in front of. Just remember that if you do this in the middle of an animation, you should check any IntelliMation timepoints you've used **after** that point to make sure the settings are correct. It's easy to see if they need changing, because something will disappear or go in front or behind something incorrectly when you do a test run.

But we want to bring in **walkgirlfront** at that point and position, and we DON'T want **walkgirlside** visible to the audience when we do. Like an actor on a real stage, **walkgirlside** must quickly slip backstage at 5 seconds, just as **walkgirlfront** makes her entrance. The frame animation **walkgirlside** is still there, so she is still listed as an object on the page. But now her **Design Layer** is behind the stage set (the sidewalk picture), and the audience can't see her. Diagram 2 shows what this might look like from above, with **walkgirlfront** upstage right, and **walkgirlside** backstage directly behind her.



Getting The Actors Into Position

There is a second reason why it's better to do this quick exchange by changing **Design Layers** rather than deleting the first frame animation. Having them both on the page at 5 seconds makes it much easier to get the new actor, **walkgirlfront**, into the correct position. At 5 seconds **walkgirlside** is moved from left to right, **walkgirlfront** is brought in and positioned exactly on top of **walkgirlside**, and only then is the **Design Layer** of **walkgirlside** changed to -52 so that she goes behind the stage set. Once **walkgirlside** is deselected and goes behind the set, she can't accidentally be selected again. That makes it easy to select **walkgirlfront**, flip her horizontally, and change her settings. Her design layer to is set to 1, since she doesn't need to walk behind the tree.

Using Grow And Shrink In IntelliMation

Let's look at the next key timepoint to discover what objects are on the page and examine their settings. You must first click the **+5**

button to see the timeline between 5 and 10 seconds, then click **6 seconds**. At this point, the girl has turned to the side facing left, after walking toward you. If you look closely, you will see that she is slightly bigger, too, since she is supposed to be closer now. Look at the objects list under **Edit-->Select Object**.

Now there are three frame animations listed, **walkgirlside**, **walkgirlfront**, and **walkgirlside#2**. But we only can see **walkgirlside#2**. If you select **walkgirlside**, our original animation, you can see from her ghostly outline that she is still backstage and has not moved. Next, select **walkgirlfront**, and look at her **Properties**. Since you see her selection ghost, you probably aren't surprised to see that her **Design Layer** has been changed to **-52**, to put her backstage at this point. Notice another change: Both **Horizontal** and **Vertical Scaling settings** are now **110%**. This makes **walkgirlfront** expand slightly as she approaches you, for a realistic effect.

Now select the new animation from the objects list, **walkgirlside#2**. This is a second copy of the side view frame animation, brought in from the **Picture Library**. In her **Properties**, notice that **walkgirlside#2** is set to **110% Horizontal** and **Vertical Scaling**, so that she starts off at the same size as **walkgirlfront**, the actor she replaces. Her **Design Layer** is set to **3**, since she's about to walk in front of the tree. That setting could be any positive number greater than 0, up to the maximum 100. One other setting has been changed: **walkgirlside#2** has been **flipped horizontally** so that she faces left. By default, this frame animation comes in facing right, but we'll flip her here so that she can walk to the left past the tree.

> Tip 9: Like ordinary clip art, you can adjust frame animations with the **Transform Tools** to change the size or flip them horizontally or vertically. This option is especially useful in stringing together sets of animations of the same figure in different poses.

Continuing our analysis, let's see what objects are listed at the next key timepoint, 10.5. Again, you'll have to **click the +5** seconds button, then click **10.5 seconds**. At this timepoint, the girl is located just left of the tree, and has turned so you see her back. Under **Edit-->Select Object**, look at the objects list. Sure enough, a new frame animation is listed, **walkgirlback**. The first two frame animations, **walkgirlside** and **walkgirlfront**, have not moved since the previous timepoint, and both are still backstage. **Walkgirlside#2** has been moved to the left of the tree, and her **Design Layer** has been changed from something in front of the tree (greater than 0) to a setting behind the stage set, **-52**, so she has disappeared.

Let's open the properties of the newest frame animation, **walkgirlback**. Her horizontal position is exactly the same as **walkgirlside#2**, and so is her size, 1**10% Horizontal** and **Vertical Scaling**. She has done a sneaky switch with **walkgirlside#2**, and fooled the audience into seeing the walking girl turn back facing the sidewalk. We're using the differing poses for the walking girl frame animations the way stunt doubles switch with the star actors in a movie.

As she walks toward the sidewalk, **walkgirlback** will overlap the tree slightly, and should pass behind the edge of it. Notice her **Design Layer**: **-3**, farther back than the tree which is at at **Design Layer 0**. Do you understand how those settings let her go behind the edge of the tree? On to the next timepoint!

Entrances And Exits

Click timepoint **11.5**, and again note what objects are on the page. At this point, if you were watching the animation run, you would see the girl turn left to begin walking along the last section of the sidewalk, after walking away from you for a few steps. Under **Edit-->Select Object**, we see the stage set picture (**Not Background!**), clipart tree, **Walk!** button and all four frame animations we've used, **walkgirlside,**

walkgirlfront, walkgirlback, and **walkgirlside#2**. The first three of these are backstage and can't be seen by the audience. Wow, it must be crowded back there! Luckily, they aren't all in the same part of backstage. Each is hiding where we saw her disappear.

But if we select **walkgirlside#2**, we notice that she has moved since we last saw her. She's the one the audience sees at this timepoint, of course. Let's open **walkgirlside#2**'s **Properties**. Remember that she had been flipped horizontally so that she faced left, and her horizontal and vertical size settings were enlarged to 110%. But since she is further back on the stage, her size is adjusted back down to 100% at this timepoint. Her horizontal position is the same as **walkgirlback**'s current position, but they are on different **Design Layers**. **Walkgirlside#2** has a design layer of **-3**, just behind the tree, but **walkgirlback** now is backstage at **Design Layer -52**. In effect, **walkgirlside#2** moved across the stage to the left **while backstage**, then made her entrance at the same spot where **walkgirlback** slipped out of sight backstage.

You can see an advantage to using this backstage system. We did not need to bring in a new actor at this point, we just moved one of them backstage, then brought her in front of the stage set using a **Design Layer** change. If our budget was limited, we could get by with one less actor. We could have used **walkgirlside** for all side views, flipping her and changing her size and position at 6 seconds, hiding her a second time at 10 seconds, and changing her size, position, and **Design Layer** again at 11.5 seconds. But then we would need to be extra cautious that there was at least one entire second between these entrances and exits, lest the audience catch a glimpse of **walkgirlside** moving into a new position.

Let's check out the last timepoint, **13.5** seconds. At this point, none of the actors are visible, but notice that **walkgirlside** is in a new position, at the extreme left side of our stage. Her **Design Layer** changes from

-3 to **-52** (behind the stage set) at this timepoint, putting her backstage again. When you run this animation, it seems like the girl walks right off the screen at the end. You've probably noticed that you cannot actually drag a frame animation or bit of clip art completely off the page. For this reason, frame animations may walk in place at the edge of the screen for a moment at the end of an animation sequence. But if you've put a stage set on your page, you can change the **Design Layer** of an animation to put it backstage when it reaches the edge and hide this walk in place effect from the audience.

What We Have Learned In Part 2

1. How to use a full-screen picture as a stage set
2. How to hide and show things from backstage
3. How to use flip and re-size with frame animations to have them come closer or move away realistically.
4. How to use the backstage option to hide figures, when stringing together frame animations.

☞ Now It's Your Turn!

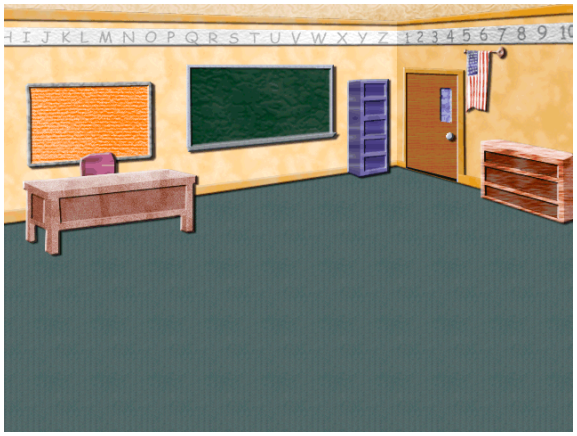
We've learned about as much as we can by analyzing a pre-made animation sequence. It's time you had a chance to build one from scratch. Since this is a fairly advanced technique, I'll walk you through it. Please think about how each step you complete contributes to a complex animation much like the one we analyzed.

1. Go up to the **Pages** menu and make a **New**, blank page. Keep in mind that **Play IntelliMation** is the default **Page Action**, so you don't have to add that.

2. Go to **Edit-->Insert Picture From File**. When the **File** dialog opens, navigate to the **IntelliTools** folder, go into the **Pictures** folder in the Classroom Suite **Media** folder, go into the **Backgrounds** folder, go into the **Illustrations** folder, and choose **Classroom.gif**. The picture will

come into the page as a floating graphic, not quite covering the entire page.

3. Open the **Properties** of the **Classroom.gif** picture. Set the **Horizontal** and **Vertical Scaling** to **128%**. Set **Design Layer** to **-50**. Click the **Scanning** tab, and take off checkmarks from **Automatic** and **Step Scan**. Click **OK**. Position the picture so that it covers the entire page. Control-click the picture to open its **Properties** again, and take the checkmark off **Respond To Mouse**. Your stage set is in place!



TIME TO SAVE! Be sure to choose **Save as Activity**

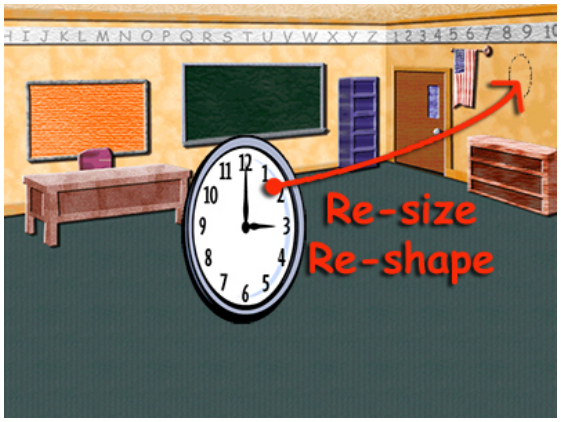
> Tip 10: You can use your own photos as well as the **Backgrounds** pictures to create stage sets. The amount of size adjustment you will need to make depends on the default size of the picture you bring in, and on the size you have set for the pages in your activity. For an activity with default size pages, **128%** seems to work for the pictures in the **Backgrounds** folder, both **Illustrations** and **Photos**.

4. Let's get fancy, and add some scenery to our stage. First, let's add a prop to the set. Add **Clock 3:00** from the **Picture Library**, and open its **Properties**. We want to put this bit of art far back, right up against the stage set, so give it a **Design Layer** of **-49**. We want the clock to look like it is on the wall with the flag and the door, right above the shelves. Its default size is much too large, and its perspective wouldn't match the details on that side wall, but we can adjust that by changing the settings for horizontal and vertical scaling.

Tip 11: You can add props to the stage set by bringing in and positioning clip art, re-sizing where needed. Then open the clip art's **Properties**, set the **Design Layer** to -49 (just in front of the stage set picture) and take off the checkmarks from **Automatic Scan**, **Step Scan**, and **Respond To Mouse**. Clip art props with these settings behave like they were part of the stage set picture, but you can hide them backstage or bring them into view with a change to their **Design Layer** setting.

Set **Horizontal Scaling** to **16%**, and **Vertical Scaling** to **30%**. The clock will look sort of squished sideways. Once you move it into place above the shelves, though, and it will look just right. While you still have **Properties** open, click the **Scanning** tab and remove the checkmarks from **Automatic** and **Step Scan**. Also take the checkmark off **Respond To Mouse**, **Lock** the clock clip art, and click **OK**. With the settings you have added, the clock will behave like it's a part of the stage set.

Tip 12: You can use the **Horizontal** and **Vertical Scaling** settings to change the proportions as well as the overall size of clip art. For example, make the **Horizontal Scaling** smaller than the **Vertical Scaling** to make the clip art look thinner and taller, proportionately. This trick can help a bit of clip art fit into a picture drawn in perspective.



It's also handy to vary the appearance of clip art you use multiple times, such as trees in a forest.

TIME TO SAVE! Be sure to choose **Save as Activity**

5. Let's add the frame animation of the student sitting and typing at a small desk, **Student(animated)**, from the **Picture Library**. Position it in

the center of the page, about an inch from the bottom, and open its **Properties**. We'll have other frame animations go behind this one, so let's set its **Design Layer** to **10**. The default size is a bit large, so change the **Horizontal** and **Vertical Scaling** to **80%**. Then take this animation off scanning and mouse, and lock it in place. To me, this "student" looks much older than the walking kids, so we're going to pretend that our typist is the teacher, as we add a walking figure.

6. Open the IntelliMation timeline. We have our stage set, static scenery and stationary actor in place, and we are at **0 seconds**. It's time to add our moving actor! Let's use the **walkboyside** animation from the **Picture Library**. Place him on the far left, with his head just above the empty desk, for his starting position. Open the **Properties** of **walkboyside**. His **Design Layer** is the default 0, so we know he will walk behind the typist. He looks a bit too large, so set the **Horizontal** and **Vertical Scaling** to **84%**. Take off the checkmarks from **Scanning**, but leave the one on **Respond To Mouse**, since we will be moving this frame animation later. Click **OK**.

7. Click the **5 seconds** timepoint. Move **walkboyside** across the page to the far right and place him so he is looking at the clock. Change his **Horizontal** and **Vertical Scaling** to **67%**, since he has moved farther away from our viewpoint. Click **OK**.

Now bring in another pose for this figure, **walkboyfront**. Position him right on top of **walkboyside**. Open the **Properties** of **walkboyfront** (check that you have the correct **Properties** window open!), and change his **Horizontal** and **Vertical Scaling** so that he is the same size as **walkboyside**. I found that **76%** is about right. Apparently, the default sizes of these two frame animations differ. Remove the checkmarks from **Automatic** and **Step Scan**. Then click the **Frames** tab. Here is

where you can adjust how fast IntelliMation flips through the frames that create the walking motion. We're about to make this boy walk faster, so move the slider to **Fast**. Click **OK**.

> Tip 13: Frame animations actually have two motions, changes in position and the movement cycle of the frames in the animation. You can change the speed of the position change by having a longer or shorter number of seconds between timepoints to go a given distance. You can change the speed of the frames cycle under the **Frames** tab in **Properties**.
>
> Getting these two motions coordinated is a matter of trial and error, but it's worth the time spent tweaking them to get a realistic effect. For example, if the walking girl is moving across the page too fast for her frames cycle, her feet will look like she is sliding or skating. Speed up **Frame Flipping Speed**, and her fast walk will look much more convincing.

Check the position of **walkboyfront** one last time, making sure his feet are just on a level with the feet of **walkboyside**. Now go up to **Edit-->Select Object**, and select **walkboyside**. Again under **Edit**, choose **Properties**, and double check that the **Properties** window you open is really for **walkboyside**. Change his **Design Layer** to **-52** or lower, to put him backstage. Click **OK**.

Congratulations! You've just done your first actor switch!

To see what you have created so far, click the black triangle at the end of the timeline to test your animation. Did the walking boy cross the classroom, pass behind the typist, look at the clock, and turn around to face you? Great! Let's continue creating our animated story.

TIME TO SAVE! Be sure to choose **Save as Activity**

8. Click the **+5 button** to see the next portion of the timeline, then click **7 seconds**. Move **walkboyfront** to a position just to the right of the typist's desk, with his feet close to the bottom edge of the page as though he has walked forward past the desk. Open the **Properties** of **walkboyfront**, change his **Horizontal** and **Vertical Scaling** to **105%**, and click **OK**. Then go up to **Edit-->Select Object**, and choose **walkboyside**, who has been taking a break backstage. He will just be a ghostly selection outline, Move him to the exact same position as **walkboyfront**, and open his **Properties** from the **Edit** menu. Again be sure you have the correct **Properties** window open.

Set the **Design Layer** of **walkboyside** to **11** or higher, so that he can walk in front of the typist's desk. Set his **Horizontal** and **Vertical** scaling to **105%**, to match the size of **walkboyfront** at this timepoint. In the lower part of the **Properties** window, under **Flipping**, choose **Horizonta**l, to flip **walkboyside** so that he faces **left**. We'll leave his **Frames** setting at the default, so he will walk slower in this segment. Click **OK**. Your changes have brought **walkboyside** out from backstage, and he has made his entrance in a new position. Now select **walkboyfront** using **Edit-->Select Object**, open his **Properties** using **Edit-->Properties**, and put him backstage by changing his **Design Layer** to **-52**. Click **OK**.

9. Click **9.5 seconds** on the timeline, to begin the next actor switch. Move **walkboyside** to the left, just past the typist's desk. Bring in a third frame animation, **walkboyback**, from the **Picture Library**, place him at the same position as **walkboyside**, and open his **Properties**. This actor won't be going behind or in front of any scenery, so you can leave the **Design Layer** at the default 0. Set his **Horizontal** and **Vertical** scaling to **105%**, to match the size of **walkboyside**. Under **Flipping**, click **Horizontal**, so that he will walk slightly to the left as he walks away.

Now click the **Frames** tab, and set **Frame Flipping Speed** to **Fast**. Remove the checkmarks under **Scanning**, and click **OK** to close

Properties. Go up to the menu and select **walkboyside** using **Edit-->Select Object**, then use **Edit-->Properties** to open the window for **walkboyside**. Put him backstage again by changing his **Design Layer** to **-52**, click **OK**. Just one more timepoint!

10. Click the **+5** button to see the next part of the timeline, and click **11.5 seconds**. Move **walkboyback** to the far left, as far as you can drag him, and with his head above the empty desk on the back wall. Open his **Properties**. We want our actor to go backstage and vanish at this timepoint, as if he left the room, so set his **Design Layer** to **-52**. He has moved away from us, so change his **Horizontal** and **Vertical Scaling** to **69%**. Click **OK**.

Now try out your complex IntelliMation. You should see the boy enter from the left, cross the room and look at the clock, discover it's time to go home, turn toward you and walk quickly to the front, turn sideways and walk more slowly to the left, as he goes past the teacher, turn away from you, and walk fast off the page to the left. Did everything work?

TIME TO SAVE! Be sure to choose **Save as Activity**

Give yourself a reward!

You're an expert IntelliMation director now!

Things We Learned Hands-On

1. We can change the **Horizontal** and **Vertical Scaling** of both static clipart and of frame animations. When we change the scaling of frame

animations from one timepoint to another, the frame animation grows or shrinks smoothly as it changes position.
2. We can change the **Horizontal** and **Vertical Scaling** independently, to change the proportions as well as the size of objects.
3. Besides using full-page pictures as the stage set, we can **add props** in the form of clip art to the set, and make them inert as though part of the set.
4. We can change the **Frame Flipping Speed** of frame animations to make their movements match their position changes.

☞ Now It's Your Turn!

Challenge: Using the tricks you have learned, construct a complex IntelliMation from scratch. Use **ATMStreet.gif** from the **Backgrounds-->Illustrations** folder as your **stage set**. Use the **wheelchairboyfront** frame animation and have him start distant, on the sidewalk in the upper right. You will need to **flip** the animation and **adjust its size**. Make him come closer and get bigger as he approaches along the sidewalk. At the corner, do an actor exchange with **wheelchairboyside**. Have him roll left to the corner, then disappear at the left edge of the page. **Hint:** This IntelliMation should have just three key timepoints. There is a finished version of this IntelliMation called **Around The Corner** to consult if you get stuck, but try to do this challenge without peeking.