

BLOWING BUBBLES

Age Range: Foundation Stage to Y2; age 3+ – 6 years

Theme: Fabulous Forces

Objectives:



To find out about and describe how bubbles move under different conditions.

Resources:



Bubble mixture.
Hoops to blow the bubble mixture through.
'Flappers' e.g. sheets of card.

Activity

Notes:



The children should be given time to practice blowing bubbles. Some children may need to be taught how to do this. When they can blow them confidently they should blow a stream of bubbles in a calm atmosphere and watch how they move. Set the challenge of making them speed up, change direction and travel upwards. Direct the children's observations towards the different size of bubbles and whether their size affects the rate at which they fall. Parents or older children who are involved with this activity could help those children who find it difficult to blow bubbles and help the children to think about how they could alter the speed and direction of the bubbles.

Key

Questions:



- In which direction do your bubbles travel? (In a calm atmosphere).
- Can you make them change direction?
- Can you make them go faster?
- Can you make them travel upwards?
- Do bigger bubbles fall to the ground faster than the smaller ones?

Recording

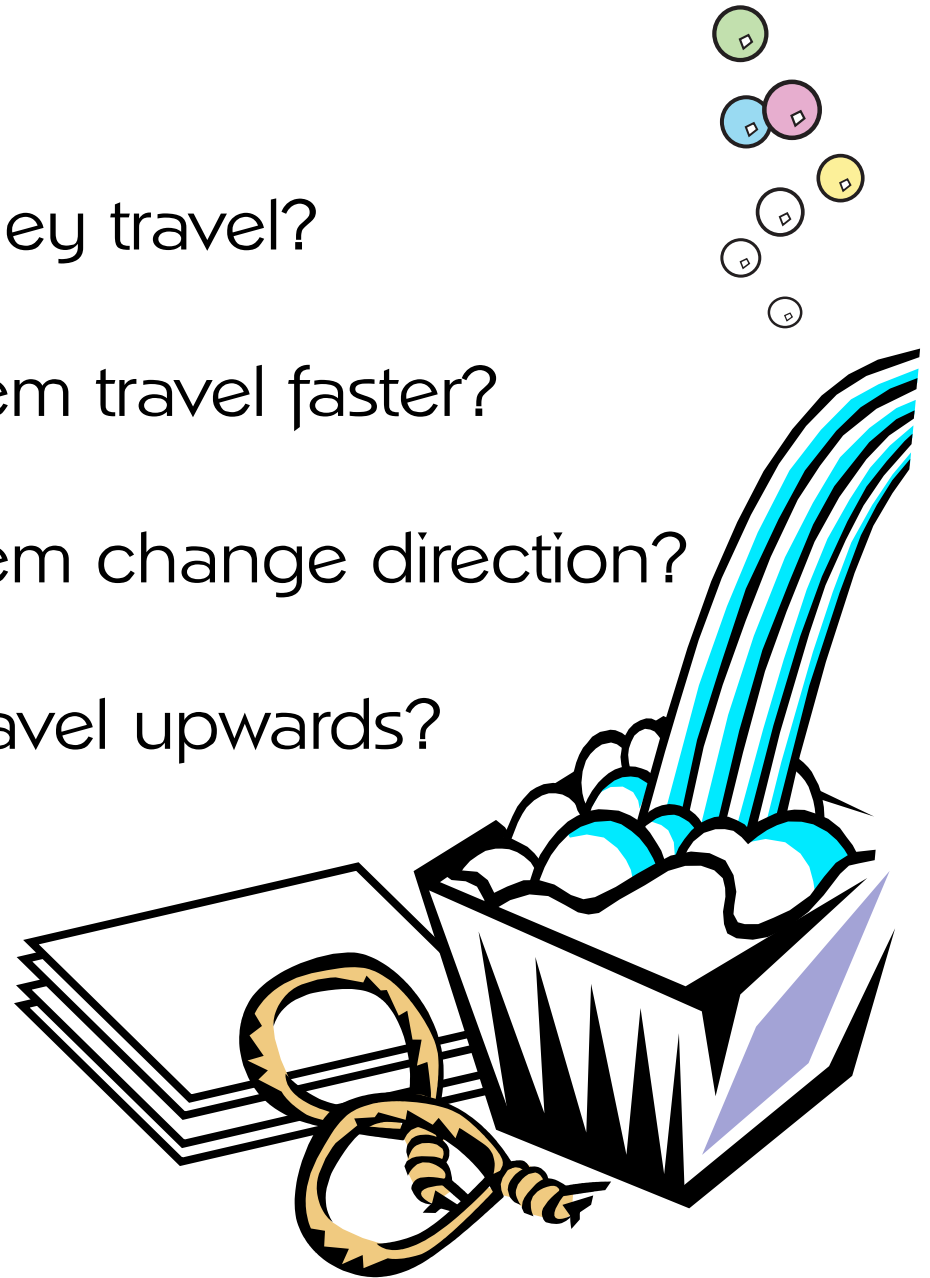
Opportunities:



The teacher can prepare a series of frames on a large pieces of paper with suitable captions to match the activity and observations. The children can choose to draw one picture each of one part of the activity, which is then stuck into the relevant frame.

BLOWING BUBBLES

- Blow some bubbles.
- In which direction do they travel?
- How can you make them travel faster?
- How can you make them change direction?
- Can you make them travel upwards?
- Do bigger bubbles fall faster than small bubbles?



Age Range: Foundation Stage to Y2; age 3+ – 7 years

Theme: Living it up

Objectives:



To explore how easy it is to perform some activities with eyes open and closed.
To explore how humans use their senses in combination in order to perform activities.

Resources:



Pencils, paper, building blocks, medium sized soft ball.

Activity

Notes:



In this activity the children explore whether having their eyes open or closed effects the ease with which they perform some activities. These activities could include:

- drawing a circle on paper or in the sand
- building a tower of five blocks
- hopping / jumping on the spot
- clapping their hands
- picking up a ball.

Some activities that rely on hand and eye co-ordination are much harder to perform accurately and quickly. Some, which do not, can be performed just as easily.

Key Questions:



Which activities are more difficult to do with your eyes closed?
Which ones are just as easy?
Why do you think this is?

Recording Opportunities:



The children could make up their own activities, based on their newly acquired knowledge, and ask other children the same questions.

- With your eyes open draw a circle, build a tower with the blocks, hop or jump on the spot, clap your hands and pick up the ball.
- Now do the same things with your eyes closed.
- Which things are more difficult to do?
- Which things are no different?
- Why do you think this is?



Age Range: Foundation Stage to Y2; age 3+ – 7 years

Theme: Magic Materials

Objectives:



- To investigate materials and objects by using the sense of touch and smell.
- To give the children opportunities to explore the properties of common types of material.
- To give the children opportunities to find out about the uses of some materials.

Resources:



A large box, without a lid, containing a number of objects which are familiar to the children and made of familiar materials. e.g. a metal spoon, a bath toy, soap, sugar.

A blindfold.

Activity

Notes:



One child puts on the blindfold and lifts an object out of the box. S/he cannot see what it is, but the rest of the children can. The blindfolded child feels the object and smells it. The child tells the rest of the children what s/he can feel and smell. They, or an adult, can ask simple questions e.g. Is it smooth or rough? Is it hard or soft? When the child has described the properties of the material that the object is made of the adult should sum them up.

The child then guesses what the object is. The other children can join in by giving clues. Young children will want to tell and will need encouragement not to end the game too quickly by 'telling'. Some children may be nervous of being blindfolded. They need reassurance that it is safe. Alternatively this could be done in a lidded box with a hand sized hole cut out, and the front panel removed. Other adults or older children can encourage the children not to shout out what the object is.

Key Questions:



These are aimed at focusing the child's attention on the materials from which the objects are made. Once these have been described questions should link material to its suitability for a task.

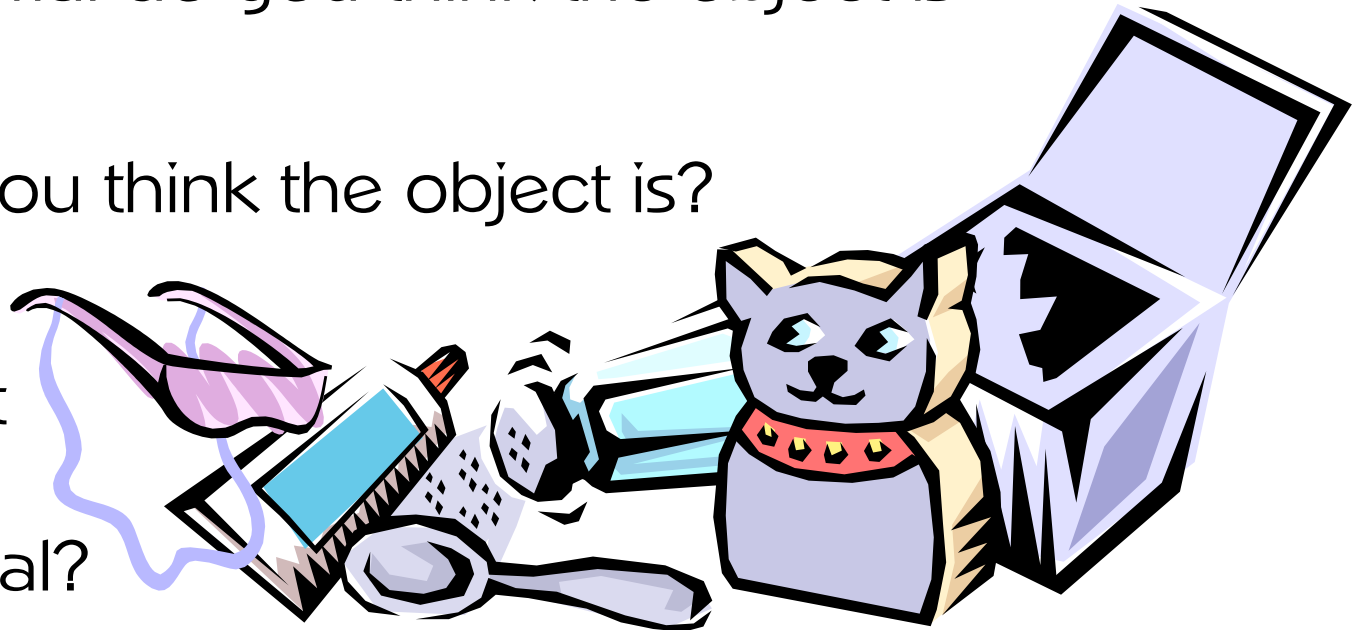
Recording Opportunities:



A picture of the objects, with the words the children have used to describe the materials from which they are made underneath.

GUESS WHAT?

- You are going to take turns at describing an object without looking at it.
- Feel it. Smell it.
- What words can you think of to describe what you have observed?
- What material do you think the object is made of?
- What do you think the object is?
- Why do you think it is made of that material?



Age Range: Foundation Stage to Y2; age range 3+ - 6 years

Theme: Fabulous Forces

Objectives:



- To experience applying a force to water in order to make it move.
- To begin to ask questions about why things happen.
- To begin to make simple comparisons and make simple associations between the force applied and the resulting movement.

Resources:



A water tray and a variety of water containers which will easily fit into the tray, including squeeze bottles and jugs. Waterproof aprons.

Activity Notes:



The children look at and describe the water in the tray when it is undisturbed. Ask them how they could change it just by using their hands. Try a few suggestions. These may include splashing with the fingers or smacking the surface of the water with the flat of the hand.

Through questioning help the children to recognise that they are applying a force – a push or a pull in order to make the water move. How many ways can they find to make the water move?

Encourage them to try squirting, blowing and pouring. Does the size of the blow or the squirt effect how much water is moved? Challenge the children to hit a target with a jet of water from a squeeze bottle. If parents are at the Science Fair they could ask questions and encourage the children.

Key Questions:



- What does the water look like when we leave it alone?
- How can we change that?
- What are you doing with your hands to make the water change shape?
- What happens to the water when you blow harder or more softly, or pour it from higher up?
- What do you have to do to the squeeze bottle to help you hit the target?

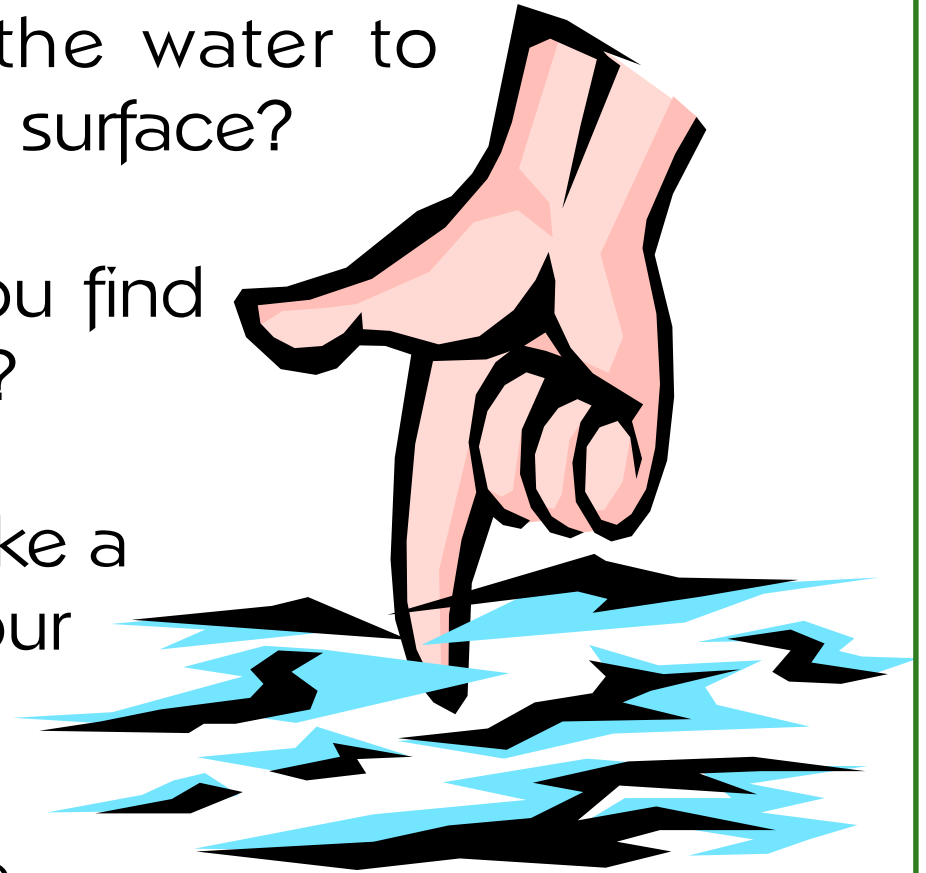
Recording Opportunities:



Annotated photographs of the children working in the water tray, and trying to squirt water onto a target.

MAKING WAVES

- What is the surface of the water like before you touch it?
- What can you do to the water to change the shape of the surface?
- How many ways can you find to make the water move?
- What happens if you make a small movement with your hands?
- What about if you make a big movement?



NE AND NY SHADOW

Age Range: Foundation Stage; age range 3 – 4 years (but older children would enjoy it as well!)

Theme: Lovely Light

Objectives:



To ask questions about how shadows move and behave.

To begin to find out about how shadows are formed and behave.

Resources:



A sunny day or large room with a bright light source from one side.

Activity



Notes:

The children spread out in a space in small groups or pairs. They find their own shadow.

They perform some actions and see if the shadow copies them. Some of these activities should take place with the children standing in one place, and others with the children moving about and jumping/hopping etc.

Can they jump onto their own shadow? Working with a friend they can try to copy the movements of each other's shadow, e.g. waving. Ask them if they can stand on their friends' shadow. Can they hide on it? Can they make a shadow monster between them?

Key Questions:



How do you know that is your shadow? Does your shadow copy everything you do? Does your shadow always stay joined to you? When doesn't it? Why do you think this is? Can you jump onto your shadow? Can you make your shadow do the same as your friend's shadow? Can you hide on your friend's shadow? Is any part of your shadow showing? Can you make a shadow monster?

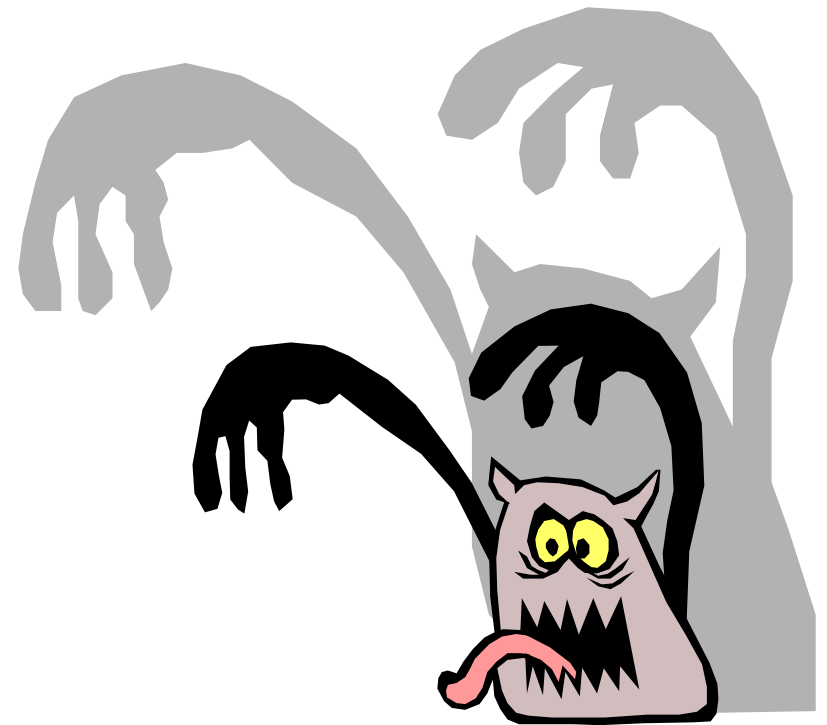
Recording Opportunities:



Talking about what they are doing and what they have done using the word 'shadow' correctly.

ME AND MY SHADOW

- Can you find your shadow?
- Does your shadow do everything you do?
- Can you jump onto your shadow?
- Can your shadow copy everything your friend's shadow does?
- Can you and your friend make a shadow monster?



Age Range: Foundation Stage to Y2; age 3+ – 6 years

Theme: Living it up

Objectives:



To think about the different things that children's hands can do.
To see whether one hand is more co-ordinated than the other.
To make simple comparisons between the ease of performing different actions with their hands.

Resources:



A one minute sand timer.
Marbles.
Unifix cubes.
Wooden building bricks.

Activity

Notes:



The children practice picking up the marbles, stacking the blocks and joining the Unifix cubes. When they have had experience of what they can do with each they are timed for one minute for each of three activities.

They are only allowed to use one hand to:

- pick up marbles one by one and putting them in a bowl
- stack bricks
- join Unifix cubes together.

The child then repeat the activities with the other hand. Some parents might like to try this activity with the children and would be able to help them draw comparisons with the following questions.

Key Questions:



Which hand is best for you?
Which hand do you use most?

Recording Opportunities:



The children can write down, or draw the number of objects they moved in one minute with each hand. Older children could contribute towards a group or class table in which they record the number of objects moved with each hand – and their preferred hand, to see if there is any pattern. It is important that this should not be seen as a competition between the children.

MINUTE HANDS

- Using one hand only see how many marbles you can put in the bowl in one minute.
- How many blocks can you stack in one minute using the same hand?
- How many Unifix cubes can you join together?
- Change hands and do the same things.
- Which hand is best for you?



Age Range: Foundation Stage to Y1; age 3+ – 5 years

Theme: Fabulous Forces

Objectives:



To find out some features of objects they observe.
To ask questions about why things happen.
To describe the movement of familiar things.
To recognise that when things change direction there is a cause.

Resources:



A selection of small objects; some that roll and some that don't e.g. marble, cube, pencil sharpener, tin can, toy car, crayon.

A wide ramp to roll them down. Quite thick paints. Large sheets of paper. Painting aprons.

Activity Notes:



The children practice rolling the objects to get used to what they can do. They sort them into ones they think will roll and ones that won't. Any they are not sure of they put in a separate pile. They roll the objects down the ramp and check their predictions.

What do the 'rollers' have in common? What do the non-rollers have in common? Dip the base of each roller, in turn, in the paint and roll it down the paper on the ramp. Encourage the children to say whether the roller travels in a straight line or a curve. Challenge them to make a (clean!) non-roller to roll. Parents or older children can help the children to roll the objects and sort them using the following questions:

Key Questions:



Which of these things do you think will /will not roll. Why do you think that? Were you right? Do they all travel straight down the ramp? In which direction do they curve? Why do you think this happens? Can you make a non-roller roll?

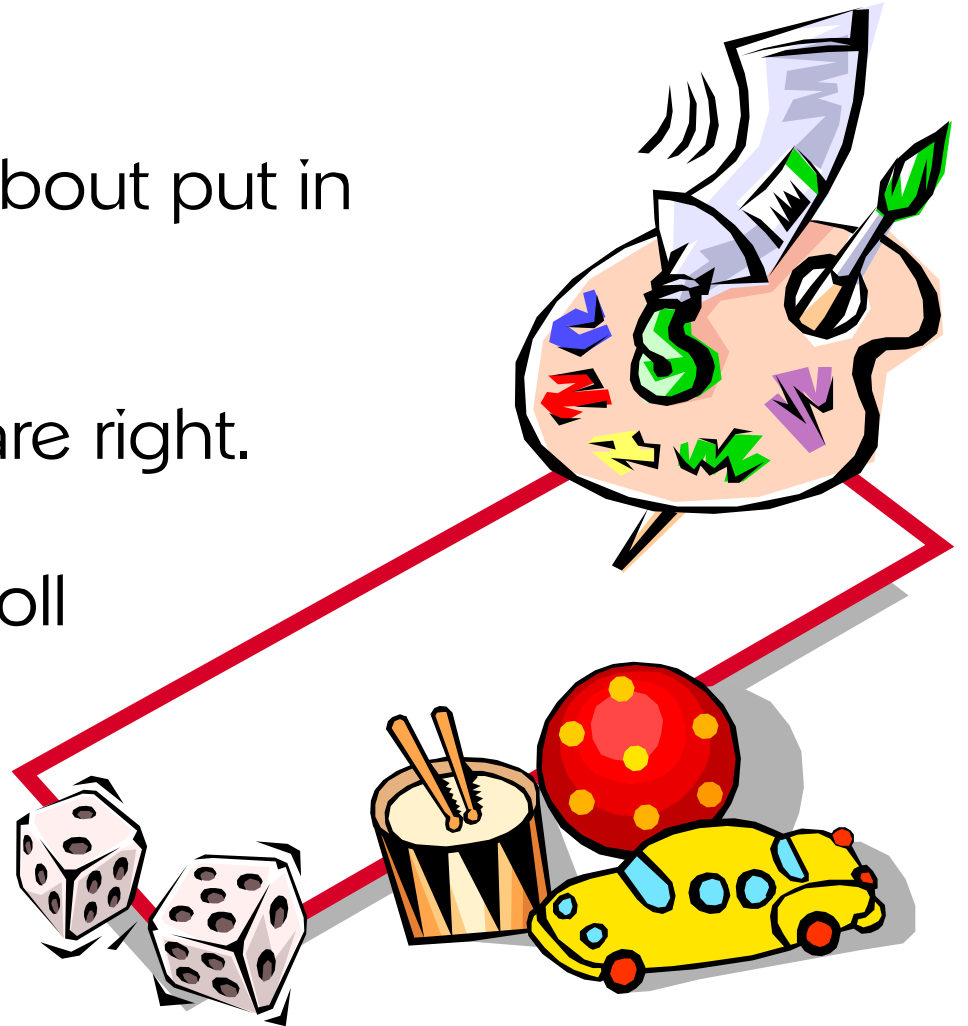
Recording Opportunities:



The paper with the paint roll tracks makes an attractive display. Mount this on the wall with the roller that made each track fixed to it. Write some of the children's questions or comments down and add them to the display for other children or adults to think about.

ROLLING THINGS

- Put the things you think will roll in one pile.
- Put the things you think won't roll in another pile.
- Any you are not sure about put in another pile.
- Try them to see if you are right.
- Dip them in paint and roll them down the paper.
- Do they all roll in the same way?



ROPE CHALLENGE

Age Range: Y1 – Y2; age 6 – 7 years

Theme: Magic materials/Super structures

Objectives:



To know/find out that materials can be made stronger by being twisted.

Resources:



Crepe paper strips in metre lengths.
Weights.

Activity Notes:



Children have a set amount of time to make as strong a rope as possible from a given number of crepe paper strips. They then test their rope to see how much weight it can support.
Older children or parents could support KS1 children in twisting the crepe paper and could ask questions to help the children think about what they are doing.

Key Questions:



Will your rope be stronger if you use more pieces of paper?
Will a longer rope be stronger than a shorter rope?
What do you think will happen if you twist the pieces of rope together?

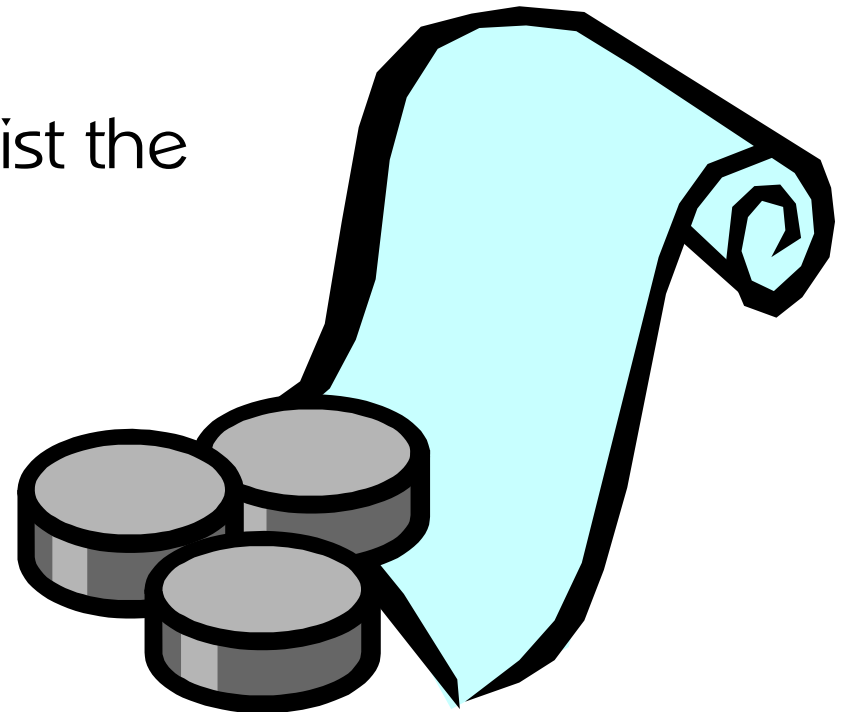
Recording Opportunities:



Stacking weights could be used to make a 3-D graph. Labels for the two axes on the graph could be stuck on the wall and the weights arranged by the labels to show which rope supported the most weight.
If the amount of weight held by the rope is unsafe to stack, then a 3D graph can be made using Lego bricks, one for each weight held.

ROPE CHALLENGE

- Use the crepe paper strips to make a super strong rope which will hold as many weights as possible.
- Will it be stronger if you use one piece of crepe paper or more than one piece?
- What will happen if you twist the crepe paper?



Age Range: Foundation Stage and Year 1; age 3+ – 5 years

Theme: Superb Sounds

Objectives:



To investigate objects and materials by using their ears.

To explore different kinds, and sources of sound.

Resources:



Small boxes (individual portion cereal boxes are ideal) containing different materials such as wet and dry sand, small and large stones, cotton wool, rice, bells, water (tied in a balloon) and sealed securely.

Activity Notes:



The children play with the boxes and listen to the sound that they make when they are shaken.

Put a sample of each material, or object, contained within the boxes on a table. The children then match the boxes to the materials they contain, using the sounds to help them. The teacher checks that the match is correct before going on to the next part of the activity. When they are familiar with the sounds they order them in 'size', either loudest to softest or softest to loudest (volume). What do they notice about the relationship between the size of the sound and the material that produces it?

Sound is caused when materials vibrate; the size of the vibrations determines the loudness of the sound. A hard object or objects in the box will cause a harder 'hit' than soft ones.

Key Questions:



- Does this box make a loud sound or a soft sound when you shake it?
- What do you think is in the box that could make that sound?
- Can you put the boxes in order from loudest to softest?
- What sort of things make soft sounds?

Recording Opportunities:



The boxes ordered by amplitude and the sample of objects or materials they contain (with name labels) beside them. Teacher scribes children's observations of types of sound and materials making them.

STACKING SOUNDS


- Shake all the boxes one by one.
- What does each sound like?
- What do you think makes the sound?
- Can you put each box by what you think it has in it?
- Now order the boxes in a line. You can start with the loudest and go to the softest or start with the softest and finish with the loudest.
- What do you notice about the loudness of the sound and what is in the box?





STRONG SANDCASTLES


Age Range: Foundation Stage to Y2; age 3+ – 7 years


Theme: Magic Materials

Objectives:  To investigate materials by sight and touch.
To look closely at differences in dry sand.
To explore the properties of wet and dry sand.

Resources:  Fine, dry sand in two containers; small sand spades or spoons.
Any size and shape of object to mould a sandcastle.
A small amount of clean water in a sprinkler eg a play watering can.

Activity Notes:  Encourage the children to play in the dry sand, patting it, running it between their fingers etc.
Ask them to make a sandcastle of any shape and size they want. Talk to them about what they are doing, and what the sand looks and feels like. Help them to wet the other container of sand and do the same thing. Talk to them about any differences they observe.
When they have two sandcastles they can 'attack' them and see which is the strongest, and how each breaks down. Some children will be very keen to do this, and will need encouragement to do it in a controlled way. Parents could help with this. Some may not want to knock down what they have built, and should be left to watch others with their sandcastles.

Key Questions:  What does the wet/dry sand look like/feel like? What can you do with dry sand that you cannot do with the wet sand (and vice versa)? Which one makes a better sandcastle? Why do you think this is? How easy is it to break each one down? Why do you think this is?

Recording Opportunities:  A class, or group poem about what the sand looked and felt like, and how they felt making their sandcastles.

STRONG SANDCASTLES

- Can you make a sandcastle out of dry sand and another out of wet sand?
- What is it like using the dry sand?
- Is it better with the wet sand, or more difficult?
- If you want to, you can try knocking them down.
- Do you notice any difference between the two?
- What difference?



Age Range: Foundation Stage to Y2; age 3+ – 6 years

Theme: Fabulous Forces

Objectives:



To observe and describe the movement of wheeled toys on a ramp.
 To find out what makes toy cars move faster and slower, change direction and stop.
 To use this knowledge to build a track that makes a car go very fast, very slow and stop.

Resources:



Small wheeled toys.
 Strips of different materials with different surfaces to make the runways.
 Wooden blocks, or similar to raise the ramps to different heights; materials of different flexibility and 'squashiness' to act as buffers. You may need to make sides to the ramps e.g. use strips of stiff card.

Activity Notes:



Children play with the small wheeled toys and talk about their movement down a ramp. As the ramp is raised and lowered they should be encouraged to talk about the differences using the correct words – fast, slow, faster, slower.

They can then experiment with ramps of different surfaces to see if there is any difference in speed of movement.

The children are then set a challenge to make a track over which the toy travels quickly, slowly, changes direction and stops in any order they want.

Key Questions:



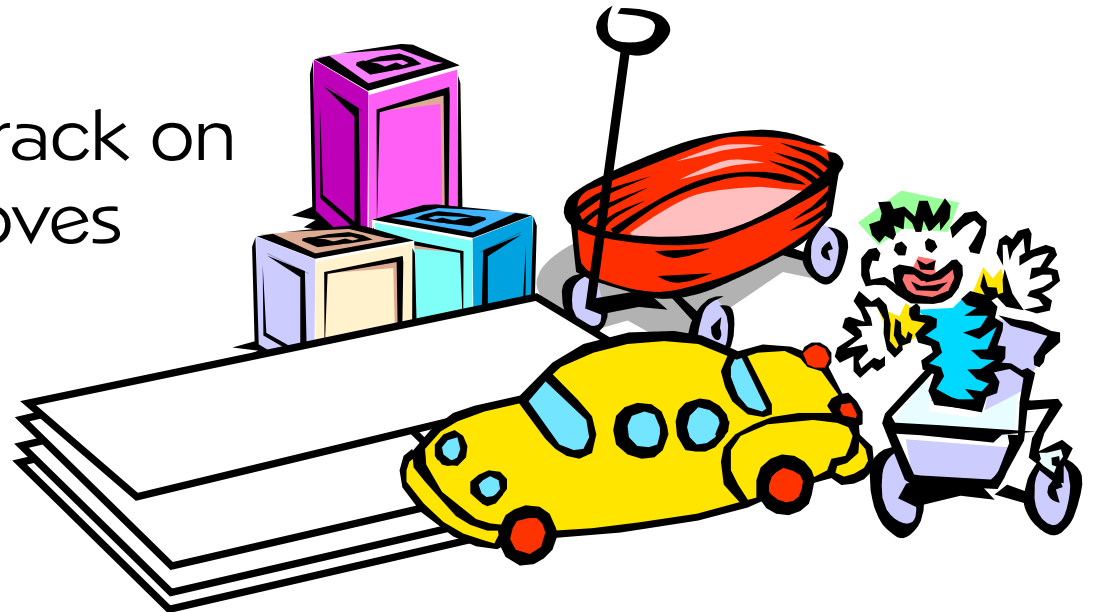
- How can you make your toy speed up?
- How can you slow it down?
- How can you make it change direction?
- Can you stop it quickly and quietly?

Recording Opportunities:



The finished ramp with the challenge question can be displayed and children from other groups or classes can try it out to see if it works. The appropriate words, e.g. slow, slower, fast, faster, change direction, go left, go right, stop could be put on the ramp in the correct places. Alternatively the children trying out the ramp could put the labels on to match their observations.

- Choose a wheeled toy and play with it on the ramp.
- Does the steepness of the ramp make any difference to how quickly or slowly it moves?
- Does the material the ramp is made from make any difference?
- Can you make a track on which your toy moves quickly, slowly, changes direction and stops?



Age Range: Foundation Stage and KS1; age 3+ – 7 years

Theme: Living it up

Objectives:



To begin to explore life processes.
To investigate the human body using their senses appropriately.
To find out about some features of living things.

Resources:



Large sheets of paper e.g. lengths of wall paper.
Felt tipped pens, coloured pencils, wax crayons etc.
Stethoscopes, toy, real or home-made.

Activity Notes:



This activity is great fun. The children love it and it is a good opportunity to find out what the children know and what misconceptions they have. It is best to do this activity as a group for younger children. Older ones can manage in pairs. Choose one child from the group, or pair, to lie on the paper. The other child draws round the body shape.

Both, or all children then try to work out what is inside, and what it does. To do this they will have to touch and listen. For younger children the adult could scribe words the children use, such as 'gurgly', or 'soft' in the appropriate place. Older children can have a go at drawing the shape that they feel and guess what it is and its function.

Key Questions:



- What can you feel?
- How big is it?
- Is it hard or soft?
- What can you hear?
- Can you think of a word to describe the sound?

Recording Opportunities:



The finished pictures!

WHAT'S GOING ON INSIDE?

- Draw around your partner's body.
- Both of you feel parts of yourselves and say what you feel.
- Can you draw it in the right place?
- Do you know its name?
- Do you know what it does?

