

WWW.THEMUDDYPUDDLETEACHER.CO.UK  
INFO@THEMUDDYPUDDLETEACHER.CO.UK

# Teaching Resources | Teacher Training



The new way to do  
outdoor learning

Addition and subtraction | EYFS

BEE GREEN AND ONLY PRINT IF YOU HAVE TO :)

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## What does this pack include?

- **Summary of objectives covered, preparation and safety**
- **Lessons for 'One More and One Less' in all weather types**
- **A worksheet in case learning has to be taken back inside or if written evidence is needed**
- **A home learning sheet to help engage parents**
- **A Muddy certificate**

## Preparation and safety

Each season, nature will bring you the resources that you need. However, if you do not have a natural setting or lack certain natural items, try to collect these in advance of your sessions. Make a habit of going out for a walk at weekends – you'll improve your own physical and mental health, which is good for you, and you'll collect your missing items. You can also encourage parents to get collecting through your newsletters! Make your world one big healthy, Muddy community. You will get an idea of the types of resources that you need each season. The only resource that you may need to buy is air-drying clay.

Weather wise, we will provide you with ideas for all types of weather. The only time that we advise you NOT to go outside is on extremely windy days and during thunderstorms. Otherwise, there are no excuses - get yourself out there!

Always risk assess with the children present. As you enter the natural environment, spend 30 seconds talking about the dangers that the weather conditions may present, such as slippery surfaces and hot sun. If possible, offer the children a solution to any issues, such as seeking out a safe, shady area if the sun is too hot.

## Aims and Objectives

### ELG - Maths Number

They add and subtract two single-digit numbers and count on or back to find the answer

I can add two single numbers together.  
I can subtract two single numbers together.  
I can count forwards to add.  
I can count backwards to subtract.

### Differentiation

EM Extend me - Numbers 0-19  
LMG Let me grow - Numbers 0-9  
HMB Help me blossom- Numbers 0-5

## Other curriculum links

**Understanding - Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.**

**Speaking - Children express themselves effectively, showing awareness of listeners' needs.**

## New to our Muddy World?

Please read the handbook before you start any of our lessons!

"The world is but a canvas to the imagination." ~ Henry David Thoreau



# Windy Days



## Introduction activity

Normally, we would not use leaves on windy days because it's easy for them to blow around and for you to then spend most of the session fetching them. However, it does make for lots of fun when selecting numbers for addition and subtraction calculations. If you have a class confident at writing numbers, get the children to write the numbers 0-9 on leaves so you have a nice pile of numbers. If your class isn't up to it, do it yourself beforehand or with the children as a team. Then, throw the leaves and ask the children to select just two leaves. Choose one of the children's selection and then model how to write these numbers into a calculation using chalk on the floor, wall or bench. Repeat as many times as needed for the children to understand. This works for both addition and subtraction. Also model how the children can find natural objects to help them add the numbers together. For example  $2 + 3 =$ . Model how the children can gather 2 conkers and 3 acorns and add them together to get their answer.

## Main Activity

Use the leaves that you have just used. Gather them up and throw the leaves in the air once again. Ask the children to race and chase the numbers until they have selected two. Put the children in pairs, if support is needed, or ask them to work solo. Children should write their two numbers into an addition calculation. Encourage them to let go of the leaves after they have written their calculation and ask them to use rocks to help them add the numbers together.

## Reflection Task

Play a fun and active game. Throw the leaves once again and ask them all to find one leaf. Choose two children to read their leaves out loud and these then become your chosen numbers. Ask the children to find natural objects that are the same quantities as these leaves. So if the chosen numbers are 4 and 5, ask the children to find 4 rocks and 5 brown leaves. Then do an addition and the inverse subtraction together as a class.

## Links to the Muddy M's

Move - Lots of running and racing for leaves.  
Muddy Nature- Talk about why some natural items need to be blown by the wind - to reproduce.  
Mental strength - Wind is typical for making children slightly giddy but what is wrong with that! Let them! :)

## Top Muddy Tips

Rocks need to be used safely and we encourage all of our Muddy Teachers to only use rocks with children if they have done lots of risk assessments and risk training. See more on our website for this. Start with small rocks and move to larger pebbles. Our advice would be to work with pebbles/rocks no bigger than the child's hand. We have a lovely activity called 'Rock Babies' on our website to best teach rock safety.

“The breath of life is in the sunlight and the hand of life is in the wind.”— Kahlil Gibran, The Prophet

## Introduction Activity

Hot days give us dry days, which is a great discussion starting point for your lesson. For this activity, you will need buckets of water and thick paint brushes. How water evaporates in heat. Model how water changes the colour of objects once water is on it. Talk a little about how and why this is. Allow the children to generate their own ideas and questions too. Let the children have some time experimenting with water and their paint brush. Can they notice the changes in colour? Then, practice some number formation work by writing numbers 0-10. Model using a wall so everyone can see the calculation. Using your paint brush and water, write  $2 + 3 =$ , then all collect 2 stones and 3 leaves to help us work it out. Check the answer again on our fingers.

## Main Activity

Now, ask the children to write their own calculation using the same method as in the intro. You could do this as a class or you could give the children a prompt sheet to work from because it's a nice day! Remind the children to not leave this behind.

Allow the children to work on this on their own and encourage them to write on the floor, the wall and the bench. Discuss which works better, which is clearer and why and have all of those wonderful materials discussions that are feeding into this lovely maths lesson.

## Reflection Task

Hopefully the children have had some great practice at writing calculations. Now try some mental maths. It is a nice day so ask the children to lie on their backs. Tell them the calculation  $5 + 2 =$ . Can they put 5 in their head, keep their eyes closed and count on two? Encourage the use of fingers if they need it. Repeat this until they have had good practice. The same process can be used for subtraction.

To challenge the more able children, use three single digits.



"In nature, nothing is perfect and everything is perfect."

## Links to the Muddy M's

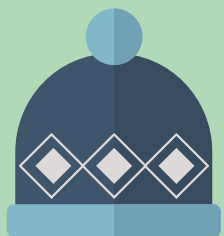
Muddy Movers - Lots of bending down, fine and gross motor skills  
Mental Strength- Sun injects Vitamin D so talk about that. Who feels happy in the sun? Why? Lying down and relaxing for mental maths.

Mother Nature - Talk about how important the sun is to us and maybe, if the opportunity arises, a little on climate change and the reason for this.



Sunny  
Days

# Cold Days



## Introduction Activity

Cold outside? Start with some fast running addition and subtraction games. Before the children go out, put a name tag on them with a number 0-9 on. Repeat numbers if needed. Ask the children to split up into two halves. One half should stand at one end of the yard with the others at the other end. Ask them to get in order, with the same numbers linking arms to show they are as one.

Reshuffle them and do it again. Get them out of breath, rosy-cheeked and ready to learn!

## Main Activity

Play another active game. Ask one half of the class to stand at one end of your space and the other at the other end. Then, when you say go the children have to run and find someone with another number. They have now become a calculation. Tell them if it's an addition or subtraction. The children now have to work out their calculation and can use objects near them to help. For instance, a child with the number 5 joins with a child who has 3 and they do a subtraction. So the children go and find 5 rocks and take 3 rocks away to be left with the answer 2. Line the children up in their pairs and ask them for the answer. Then do it again and again until they have it!



"In all things of nature  
there is something of  
the marvellous."-  
Aristotle

## Plenary

Have a go at doing a three digit calculation. Start with addition then, if ready, try a subtraction. Chose the numbers by choosing three children, while the others have to find the objects to represent and help us add the numbers up. Get them racing around - ask for things far away to get them moving.

## Links to the Muddy M's

Muddy Movers - Lots of running and racing.  
Mental Strength - Use some class compassion and help keep each other warm with hugs and smiles. Maybe have a hot chocolate when you all get in  
Mother Nature - Plenty of fresh air work and fun getting warm. Any children looking cold, do go in, but limit from the cold to warm.

## Introduction Activity

Teach the children the positive rainy day song.  
Rain, rain is here to today, here to help us learn and play' :)  
Addition and subtraction rainy days are so much fun. You need to find yourself a stick and some lovely mud. Then just let the children have a go at writing the answers to your problems.  $2 + 2$  is? All count together by putting two in your head and splashing in the rain two more. Then all write 4 in the mud. Try this a few times.

'Life is 10% what happens to you and 90% how you react to it.'- Charles R. Swindoll

## Main Activity

For your main activity, use your sticks again but this time splash in the rain as you count. Keep the activity as a full class activity to keep their attention, if they're not used to learning in the rain. Shout out the calculation.  $7 - 2 = ?$  Get them to put seven in their head and tap in a puddle and as you count back to them 2...6,5! Repeat with lots of different calculations. In between each one, let them have a dance and a run in the rain, then re-group. Talk about what happens to the water when we put the stick in it - why does water splash out?

## Plenary Task

Finish by playing 'Fishy Calculations'.  
Ask the children to put five leaves into a puddle and, with their stick, fish two out.  
What is the answer?

Try again with different calculations.  
With addition, for example, put three leaves in, then another three. Fish each leaf out with a stick to get the total number.

## Links to the Muddy M's

Muddy Movers - Lots of fine motor skills using sticks and gross motor skills navigating around the puddles.  
Mental Strength- Nothing more joyful than splashing in puddles!  
Mother Nature - Talk about the water-cycle. Where rain comes from and why we need it so much. Why water splashes out when we put things in it. Eureka!!



Rainy  
Days

# Icy Days



## Introduction Activity

There are a few variations of frosty, icy days. If there is black ice, talk about why it can be dangerous and why it is dangerous to go outside when there is black ice. Frosty days with a light dusting of ice is perfect for writing calculations in the ice. Very icy days, with icicles dropping off the school guttering, are a gorgeous sight. However, what comes with ice is lots of minus temperatures - it's important to talk to the children about that even though they may not get it now. Ice occurs below freezing point and numbers go below 0. Ask two children to collect a few items they find around them and discuss changes they add them together. 'Tom has found 2 rocks and 1 leaf. How many altogether?' 'Millie has found 5 leaves and 1 acorn. If we take away the one acorn, how many does she have now?'

## Main Activity

Encourage small steps and slow walking. Ask the children to work in pairs and threes, to collect up a handful of items each and add them together. Add a little more problem-solving into it and ask them to group their items into piles and then add them together. For instance, Assad may collect 5 leaves and 1 stone, while his partner, Kirsty, collects 3 rocks and 3 leaves. Can they group the leaves together and the rocks and then add together? Allow them time to practice, this then swap partners.

## Plenary Task

Play the 'Great group count'. Ask all of the children to find a handful of items. Then sort them into piles: a pile of rocks, leaves, unknown items etc. Discuss how we can add them together. Now talk about subtracting. What if we subtracted one pile away from the total? Try rocks first. Count backwards as you subtract.

## Links to the Muddy M's

Muddy Movers - Squatting, moving fingers with lots of fine motor skill work.  
Mental Strength- Take time to look at the changes and how beautiful frost can be.  
Mother Nature -What kind of icy day are you having? How has nature changed?



'Failure will never  
overtake me if my  
determination to succeed  
is strong enough'  
-Og Mandino

## Introduction Activity

The children are going to love this lesson! Model to the children how to make a great snowball! It does all depend on what kind of snow you have but show the children how the snow needs to be compact for it all to stay as one. Let them have a practice and count how many snowballs you all have altogether. Ask three children to throw their snowballs away. Make sure this is against the wall or down low - it depends on your school's policy. How many now? Then, get a few more children to throw their snowballs away? How many now?

## Main Activity

Let the children make their own calculations in pairs. Both have one minute to make as many snowballs as they can. Then add them together. Discuss how to make this a subtraction. What do we need to do? Throw some away and work out the total. Discuss how you are going to do this safely first, and what the school's snowball throwing policy is. You may want to throw them at walls while your class is lined up. Do have a think about this before you do it, if your class finds this very exciting. Work as a class - give them the calculation and let them make it together and throw away together. Repeat and extend them with larger numbers or with three single digit calculations.

## Plenary Task

Ask all of the children to make a snow caterpillar. A snow caterpillar has many body parts. Tell them this one has 2 + 3 snowballs - how many altogether? Use rocks for eyes and other natural elements to add decoration. Make another, but use a subtraction calculation.

## Links to the Muddy M's

Muddy Movers - Playing in the snow, lots of fine motor skills.  
Mental Strength- Playing in the snow is fun and releases lots of happy hormones.  
Mother Nature - What is snow and how is it formed?

'It does not  
matter how  
slowly you go as  
long as you do  
not stop'  
- Confucius



# Snowy Days



# Addition and subtraction

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Solve the calculations for 1 digit calculations with numbers up to 5.

$$3 + 2 =$$

$$2 + 1 =$$

$$5 - 1 =$$

# Addition and subtraction

\*\*

Solve the calculations for 1 digit calculations with numbers up to 10.

$$5 + 3 =$$

$$9 + 1 =$$

$$8 - 4 =$$

# Addition and subtracton



Solve the calculations for 1 digit calculations with numbers up to 20.

$$17 + 3 =$$

$$12 + 4 =$$

$$19 - 5 =$$



## Listen to what we have done today!

Today, we have been learning about addition and subtraction by taking it outside! We like to do our learning outside. Sometimes it energises and focuses us and reminds us that learning can be fun. What is also exciting about the way we do our outdoor learning, is we do it The Muddy Puddle Teacher way. This means that we have used only natural resources, learnt a little more about the science around us and are beginning to understand how to take better care of our world.

## Your Muddy task :)

Why not go for a walk. Here are a few home learning tasks that you can try out with your child as you get out in the fresh air:

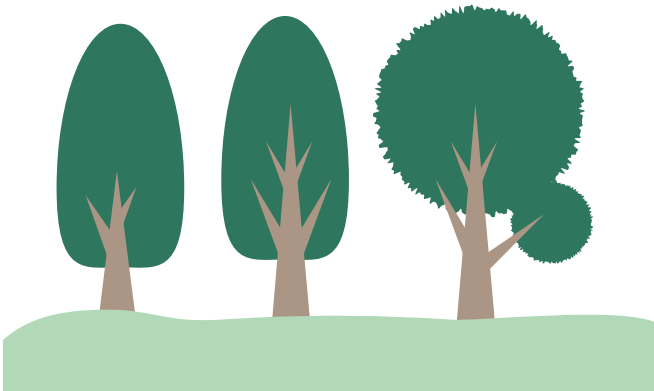
- On windy days, gather up rocks. Add them together- how many have you got? Then take three or five away. How many left?
- On rainy days, jump in puddles. Add all of the puddles you have jumped in together.
- On cold days, keep active and count the steps you have taken. We have taken 7 steps. If we took 2 away, how many would we have?
- On sunny days collect items up. How many leaves do we have? How many rocks? If we add them together, how many do we have? If we took some away, how many would we have?

### Safety Tips

Remind your child to use feet first, then hands. Check for glass or anything harmful before they explore.

For rocks- remember we pick them up slowly and carefully carry them .

Sticks - sticks stay low, they tickle our toe. If they go high, they poke us in the eye.



**“The world is but a canvas  
to the imagination.” ~ Henry  
David Thoreau**



# Congratulations!



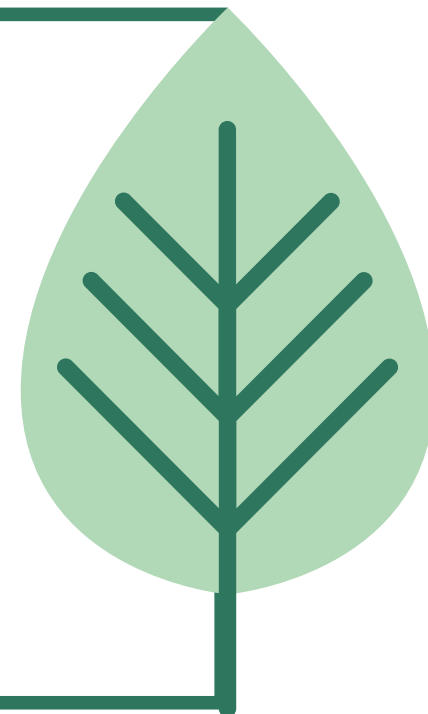
To

.....

**You have been awarded the  
Muddy Maths Award !**



For learning all about addition and subtraction, outside with  
nature :)



Signed .....Date.....

'LIFE IS A JOURNEY, NOT A DESTINATION.' -RALPH WALDO EMERSON

**Message for parents!**

If your child likes to learn outside then  
check out our parent packs at:  
[www.themuddypuddleteacher.co.uk](http://www.themuddypuddleteacher.co.uk)