

### Activity plan:

The objectives of my plan are to design an activity to help children develop their mathematical skills through cooking. According to 'Origo Education Piaget'

*Piaget proposed that children move through four stages of learning:*

*Piaget suggested that children in the early grades of elementary school need concrete objects, pictures, actions, and symbols to develop mathematical meanings.*

My activity plan is going to be baking cupcakes. This is going to be with a class of 20 mixed gender children with the age range from 4–5-year-olds. There will be three adults supervising and helping the children throughout this session.

One of the adults will be demonstrating to everyone at first. They will be giving an example and then throughout the baking process the adults will be helping and making sure the children are doing it correctly.

The children will be split into three groups; therefore, the adults can keep a better eye on the children. The children will be put into two groups of seven and one group of six. This session is going to be taking place in one of the classrooms.

The children and the adults will prepare the cupcakes in the classroom and when the cupcakes are ready to bake one of the adults will take it into the staffroom/school kitchen and put them to cook. Therefore, this will be safer for the children not to be around the oven when it is cooking. Although at one point throughout the baking process the children will go and have a look at the cupcakes as they would have risen, and I think that would be good for the children to see and understand how this process works.

Throughout baking cupcakes, you need many different resources. According to 'Best Baking Equipment for Cupcakes, (2020)'

*To achieve perfection, you will need the following baking equipment for cupcakes:*

- 1- Three size set of mixing bowls,
- 2- Measuring spoons set,
- 3- Sieve,
- 4- Electric hand whisk,
- 5- Spatula,
- 6- Cupcake tray,

7- *Cupcake paper cases.*

8- *Weighing scales*

9- *Timer*

10-*Aprons*

You would need a three-size set of mixing bowls which you would use and keep until you have mixed all the ingredients together. These bowls will be made from plastic, so they are safe for the children. The measuring spoon set will be used for measuring your baking ingredients such as sugar and flour, as this will be easier for the children to do than weighing it with weighing scales. The adults will also be using a weighing scales as it will be much quicker and less messy to use than the spoons, if necessary.

You will be using a sieve to sift to the flour once it has been weighed so it's not lumpy. Then add the sugar. There will be an electric whisk and just a normal hand whisk for the children to use so they are participating and learning. Things could get messy and teaching pupils to be clean and careful in the kitchen is essential. The electric whisk will be used by an adult to mix all the ingredients.

The spatula will be used to transfer the mix from the bowls into the cupcake cases. The cupcake tray will be holding the cupcake cases which will be holding the mix. Whilst the cupcakes are baking each group will have a timer to use, therefore the children will be counting down the time.

According to 'How is math used in cooking? (2018)', 'including converting temperature from Celsius to Fahrenheit, changing the quantities of ingredients provided by a recipe'. This demonstrates how math is linked to cooking by measuring ingredients.

The aims of this activity are for the children to be using as much math throughout as possible. For example, the children will be using math when they are measuring the ingredients into the measuring bowls when they are using the measuring spoons, when they are measuring how much flour they need and when they are measuring how much mix to put into each cupcake case. Children are always using math, they just do not realise and this is probably the easiest way to learn. Whilst the cupcakes are baking there will also be a timer, also involving numeracy.

Throughout this session there will be health and safety measures in place. All dangerous equipment will be out of reach from the children. For the children to

be included within this session there will be provided safe equipment for them to use. For example, with the electric whisk, there will be provided a normal hand whisk for the children to use. The adults will always have their full attention on the children as well, therefore if a child does not listen to the rules the adult will notice, and the child will therefore need encouragement and explanation as to how to proceed safely.

The role of the adult throughout this session is to make sure the children are having fun and learning at the same time. The adult will be making sure the children have washed their hands before starting. The adults will be in charge of cleaning up and making sure the children are being safe at all times and are not in any danger.

If for any reason some of the children have found this too easy or too difficult. Throughout the baking session you could ask how they are finding it. The adults could ask if they understand if its too easy. Therefore, the adults could change the groups throughout the session and the children which are finding this easy could be put into a group. Therefore, the children which are struggling can have move help and attention given to them. Therefore, the group which finds it easy the adult can find ways to make it more difficult. In this way all the children will be learning and enjoying the session as much as they can.

## **Section two**

Throughout this cooking session there are many benefits for the children. The children will be counting, learning how to weigh ingredients, there are many different types of math throughout this session. For example, with eggs the children will be counting how many we need and with the flour they will be weighing that. This is a good hands-on learning experience for the children.

Although there are benefits there are also issues. Although there will be adults supervising the children, in a class there would only be two teachers with a class with 20 people in it. That is why we are splitting the class equally with three teachers therefore, the children will get more help and attention. Therefore, you cannot always be looking at the children in a normal classroom. The children could not listen to the teachers throughout the cooking session. If the

children are not listening, they could try and get the dangerous equipment and potentially hurt themselves.

This cooking activity does support a mathematical development because we will be putting counted chocolate chips in the cupcakes and decorating them, therefore the children will be counting how many chocolate chips or anything else to put on the cake ingredients or on the top for decoration. The children are also weighing ingredients which includes math. This cooking session will include division, adding up and measuring.

*According to 'hwb.gov.wales'. 'The four purposes are the shared vision and aspiration for every child and young person. In fulfilling these, we set high expectations for all, promote individual and national well-being, tackle ignorance and misinformation, and encourage critical and civic engagement.'*

The aims for the new Curriculum are to set out legislation for the age from three-year-olds to six-teen year olds. The reason for this is to make sure that all the schools are learning the same.

According to 'Hwb' the new curriculum consists of, *'designing your curriculum-general guidance on developing a curriculum across all areas of learning and experience. Principles of progressions how learners make progress throughout their learning across the curriculum'*. There are many more which are included in the new curriculum as well.

The main role of the adult is to make sure the children are being safe. The adult also needs to make sure that the children are learning mathematical skills throughout this and all the children are participating and getting involved. One of the adults will show an example of what should be done by the children and what for them not to touch and what not to do. Therefore, the children will have an idea of what they need to be doing.

Every child learns differently but at this age the best way for children to learn is throughout play. Children are constantly learning throughout play. The children are using their imagination and their creativity. When children are learning throughout play is the best way because they do not realise, they are learning because they are having fun, therefore they do not get bored.

The reason to why I have chosen a cooking session is because it is something on the curriculum and this is something the children should learn to do. The children are not going to learn how to cook, but perhaps they enjoy it and join

in at the house with their parents. Although cooking has got a lot of math in it, therefore it is a good way to get the children involved with math whilst they are having fun.

According to the BBC food'

*'Getting kids to help you cook is a great way to teach them Key Stage 2 English, maths, science, nutrition, and French skills, straight from the curriculum. They will not even realise they are learning at the same time as having fun!*

*Of course, they will also learn how to cook and eat a healthy, balanced diet. Show them what different fruits and vegetables look like and discuss how they are grown and why they are good for us.'*

### Section three

The children will be in contact with new equipment that they probably have not used at this age before. All the resources they will be using (not an electric whisk) the children will be using a hand whisk. There will be a very straight forward sheet for all the teachers and children to follow. For example, if they need four eggs there will be a picture of four eggs. Therefore, the teacher will ask the children how many eggs are on the sheet and the children will be counting how many they need to use. Therefore, the children are getting involved and counting from the sheet. Although it may be hard for the children to be weighing flour, they will have measuring spoons that way they can get involved with the adult.

During the pupil activity we could evaluate what each pupil could achieve by the outcome. By that I mean what could they do. We could assess each pupil in different categories for numeracy. Those that could measure by themselves and use the math, those that could do it with help and those that found it too difficult. We could then apply this knowledge to the next tasks for math and we would give differentiated work to the pupils. The high achievers would have harder work and work more independently. More support and easier work for the lower ability. Therefore, the children will be put into groups of their ability and get more attention for harder or easier work.

Evaluating the lesson itself would have to be based on what the pupils achieved. Was the lesson too difficult or too easy? We could ask the pupils and the staff what they thought

and what could be done to improve for next time we did some cooking with math.

My lesson must be logical. It has had a clear beginning by setting the lesson objectives which were cookery with math – although this does not need be stated. Then we would have a demonstration and then we would let the pupils do the activity but with support. There should be a lesson summary to ask the pupils what they have learnt and possibly a final assessment.

Clearly there would have to be discussion with the support teachers as to what went well and what could be improved. As a teacher I would have to realise that what I wanted to do would always be the best. I can learn from more experienced people as to what to do. The children always must be in the bet's interest.

Organisation in the classroom is essential. All the resources required would have to be laid out in readiness for the lesson. In fact, there should be a lesson plan that would clearly state the requirements and the activities. Enough resources would be required for the pupils and a few spares.

Cookery is a great opportunity for kinaesthetic learners. Some people are visual learners and learn by looking for example, demonstration. Others are aural learners who listen to instructions well. But kinesthetics helps pupils who like to learn by doing things and this session is a very hands-on session therefore, the kinaesthetic learners would really enjoy this. This lesson plan would help all three types of learners, but the kinaesthetic learners would love to learn by using their hands.

They would be using whisks, spoons, bowls measuring bowls and possibly a weighing scale. These would engage the pupils with their thought and build confidence. Some pupils will be clumsy, and we could support them.

Throughout this session there could be some children which do not listen, for example, if the children are told not to go near the electric whisk or use it and a child does not listen that causes potential danger. Some children may not want to participate throughout the session which would cause stress for the teacher, some children may lose interest in the cooking session and get bored.

Therefore, the teacher needs to make sure that all the children are getting involved and having fun. There should be barriers in place to stop any danger. For example, if the adult puts anything which could cause potential danger out of reach from the children. A child might have a learning disability therefore,

you would need extra staff to keep an eye on the children and to give extra help for those which may need the extra help. This session could not have enough equipment for all the children to use, the adult should make sure there is enough equipment for everyone to use, that way every child will have to same experience throughout this cooking session.

My age range for this session is four – five-year-olds. According to 'Oxford owl' there are seven main ways for children of this age range to learn maths.

The main seven ways are, *'talk together, talk to your child about math to build their confidence. Help explain to the child that you use math every day. Try following a recipe together, talk about numbers in the recipe'*. The second one is *'play together, play games that involve numbers and counting'*. The third one is *'explore shape, point out different shapes around you. Ask your child when objects are around you, what shape is that? How many sides does that shape have?'*. The fourth one is *'spot patterns, look for repeating patterns on wallpaper or clothing perhaps. Ask your child if they can see a pattern and ask them to tell you about it'*. The fifth one is *'practise forming numerals, help your child to learn the numerals by exploring their shapes, have fun forming numbers in sand with a stick'*. The sixth one is *'practise position words. Practice position words with your child by having a treasure hunt, for the child to try and read the notes and follow them'*. The seventh one is *'play math games, try doing math withing a game so they are having fun as well as doing math.'*

#### Section four.

The main roles of the adult throughout this session are to make sure that the children are learning math throughout, for the children to have fun and learn at the same time. The positives of the adult are the adult should be encouraging the children to get involved with the session, if a child does something wrong for the adult not to shout at the child and just explain what they have done wrong, so the child learns. The adult is there to make sure the children are away from anything that can cause potential danger, anything which is dangerous to be out of reach from the children. The adult will demonstrate the session before hand, so the children have an idea of what is going to be happening, and for the adults to be a positive, good role model towards the children.

Although the adult has positive roles there can sometimes be weaknesses too. The adult could not be encouraging towards the children, if this happens the children could lose interest of the session, get bored and they could give up. Therefore, the adult needs to make sure the children are constantly doing something, being productive and learning. Maybe the adult does not have cooking skills or is not that interested in cooking therefore if the teacher is bored the children will not enjoy. The adult could not be very patient throughout the session and start shouting at the children for playing around, where as the adult should be encouraging the children even if they are being perhaps slower than the other groups. If the cupcakes turn out badly, the adult should still tell the children they have done a good job instead of blaming the children and saying they have done something not very well. If the session is not organised the adult could get frustrated therefore could end up taking it out on the children, whereas the adults should have organised the cooking session for the children to start. If a child has a disability and cannot use the equipment, the adult should have thought about that and organised something for that child to do or use other equipment. The adults need to make sure all children are involved.

Children are always playing; they are always using math without even realising. Children have an amazing imagination, for example if you gave a child blocks, they would build something out of it. If a child has to do problem solving, they would use their imagination and their creativity to get past it.

### **Reference List**

*'How is math used in cooking?' (2018)*

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