Mathematics
Multiplication Tables

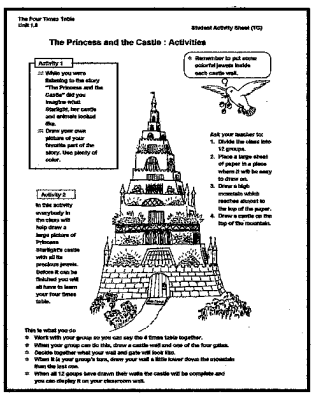
Mollet Learning Academy

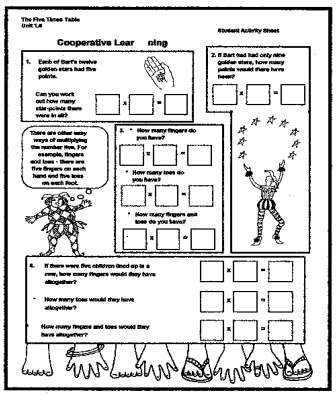
SubUnit 3.7
Ten Times Table: Mr. Pickles

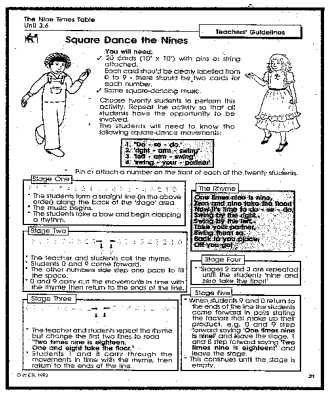
A free lesson/activities/story/game/patterns/cooperative learning activities about the ten times table

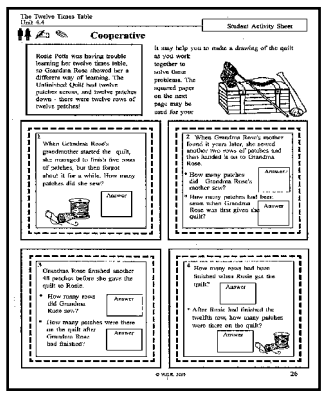
1. Students need to know their multiplication tables. However, it is more important for students to understand what they are doing than to learn how to solve problems or to compute without such understanding. Students will gain this understanding if content and methodology relate to their experience of the world. Our material facilitates this learning in an efficient and sensitive manner.
2. The approach we recommend emphasizes teaching through a variety of creative and artistic formats that relate to the students' stage of development. It concerns itself initially with the inner life of the student (each multiplication table is introduced through a story). After involving the "inner child", the approach moves gradually to the students' contact with the outer world. The process starts, therefore, in the affective realm, moves to action and the world of concrete experience, and only then to concept.
3. One has only to observe young elementary school children to see that they are imaginative and active. The corner-stone of the approach are these two attributes. On the one hand, the imagination is stimulated. This is achieved through a variety of creative and artistic formats including stories and dramas. On the other hand, a number of activities, especially those containing rhythms, are introduced. Through this process, understanding occurs which is meaningful and permanent. Thus students learn from and through their own experience - the teacher's task here is to provide the right structures, content and methodology.
4. Students need to express they information they learn in a variety of creative, artistic and imaginative formats. By doing this knowledge and skills learned becomes experience and are retained. The material contains a considerable number of student activities and assignments to facilitate this. Students review the material by completing a range of review exercises encompassing a variety of interesting and challenging formats.

Our material is unique and further information is available at
http://molletacademy.com/









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The vast majority of teachers are responsible, committed and dedicated to their students and teaching. Why aren't they empowered and trusted in the USA? Please visit http://molletacademy.com/research-reports/ to view research showing countries where students outperform the USA and where spending is almost paltry compared with the USA.

Mathematics: Multiplication Tables

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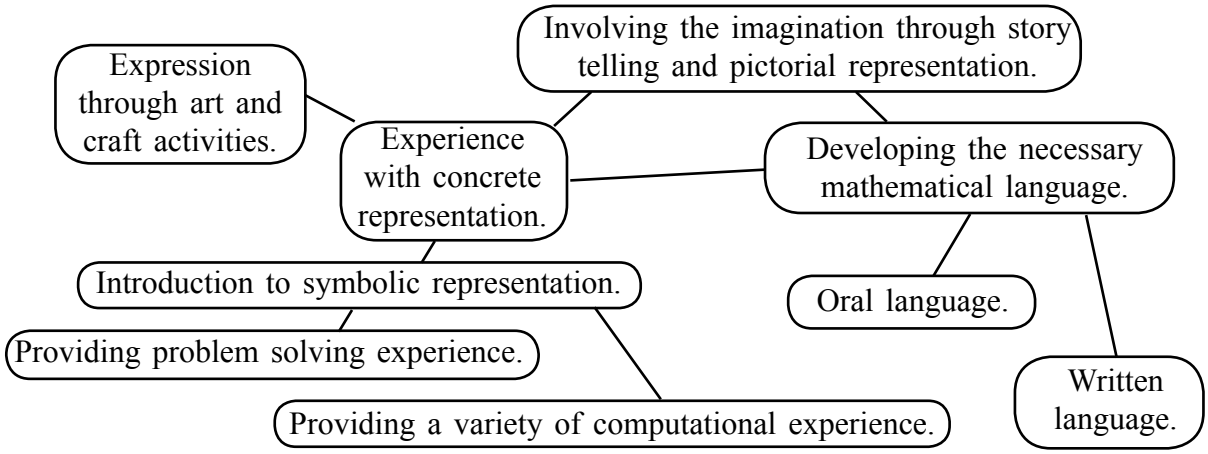
These lessons are based on the Waldorf Teaching Packs: Multiplication Tables

Details of Fractions at http://molletacademy.com/multiplication-tables/

You will find these icons at numerous places throughout the Lesson. Please explain them to your students.	Preparation time for teachers	Writing activities for students.	Opportunities to work in groups
	Information for students.	Instructions for a craft activity.	Drawing or coloring activities for students.



The Imagination: The elementary school child's world is an imaginative one; it is one of color and pictorial representation. Consequently storytelling is used extensively to stimulate the imagination, and to relate to the students' inner life and experience. From this beginning, the student is led gently towards symbolic representation, and a grasp of concepts. It is an effective method of teaching to both the left and right hand brain - to encourage both intuitive and linear thinking.

Rhythmic Action: Younger elementary school children generally respond immediately and spontaneously to rhythm. Rhythm is a natural part of their world. The popularity of the playground swings, the jump rope games, the skipping games, and the ball games with accompanying rhymes, all reflect rhythm within children, and their desire to involve themselves in rhythmic activity. It is a very natural step therefore to use rhythm in the early teaching of multiplication. This may be done in a number of ways.

Rhythmic counting generally finds an enthusiastic response with young children. For example rhythmic counting may accentuate every fourth number - for instance the numbers 4, 8, 12 etc. are spoken louder than the rest. This is also effective when accompanied by movement such as clapping or striding. For example, a group counting from 1 to 36 would clap their hands when saying 3, 6, 9 etc.: or make a stride forward on these numbers. If the numbers between are gradually spoken softly then eventually the children will just be calling out the multiples of 3 or the multiples of 4 etc. Chanting the tables also has a place. This is even more effective if the chanting is accompanied by some kind of physical movement such as marching or clapping.

The sequence of teaching is as follows.

First Stage: The first stage is to relate material to the experience of children. It is accepted that this experience is different from the adults' experience. In essence, children are not miniature adults. When teaching adults we would probably teach immediately to the "head", whereas for elementary school children the main task is to teach to the "heart" and "hands". Wherever possible, content is introduced so that it relates to artistic and pictorial representation, e.g. through storytelling. Through this type of format, information is absorbed in a way that is in empathy with the students' experience.

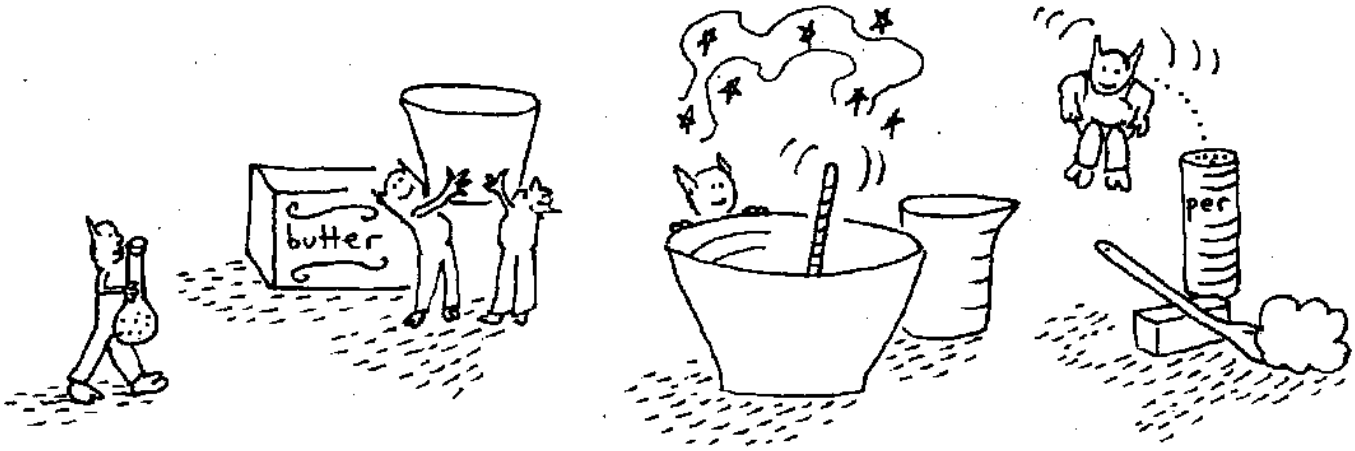
Second Stage: The second stage is to encourage the students to express their experience through a variety of artistic formats. This stage should not be hurried and the children should be given enough time to work through a number of formats according to ability, aptitude and temperament. This is the time when patterning activities should be introduced so that the patterns of multiplication are experienced and created.

Third Stage: The third stage is to work through concrete examples. This may be achieved using various kinds of manipulatives, through involvement in activities and games, and through problem solving. Rhythmic activities and chanting would also be appropriate at this stage.

Fourth Stage: The final stage is to introduce the abstract concepts and to work symbolically with numbers. This is when computational practice would be appropriate.

Story

Mr. Pickles in a Pickle



One grey and drizzly Monday morning, an awful thing happened to Mr. Pickles. It was the kind of day when this sort of dreadful thing was bound to happen... Mr. Pickles' alarm didn't go off.

Now that probably doesn't sound too bad to you, but the thing is Mr. Pickles was a baker. His staff, his customers and his family all depended on the fact that he would get up at the same time every morning to go to his shop and bake delicious cakes, buns, fresh bread and all sorts of tasty goodies.

That particular Monday morning was the worst morning for his alarm not to go off because Mr. Pickles had twelve orders of bread to bake before the shop opened, and there were ten loaves of bread in each order. Mr. Pickles was in trouble.

Nothing went right for poor Mr. Pickles that morning. Not only did he wake up two hours too late, but he spilled his breakfast all down his trousers. Then on top of it all, his baker's van simply would not start. You can probably imagine the sight - poor Mr. Pickles, all flustered and bothered in the pouring rain, his trousers covered in cornflakes - and the van just wouldn't start.

Half an hour later, Mr. Pickles was finally on his way to work. His grumpy mood didn't get any better when a bag of flour in the back of the van burst, spreading a cloud of white dust everywhere. Mr. Pickles could hardly see the road through all the flour and he very nearly drove straight into a lamp post. When Mr. Pickles finally arrived, there was only half an hour to spare before the shop would have to open. Half an hour wasn't nearly enough time to bake twelve orders.

"What am I to do?" wailed Mr. Pickles as he sat in an old chair and put his head in his hands.

"Don't give up," a little voice whispered.

Mr. Pickles looked around. "Who's there?" he said, but there was no answer. Mr. Pickles was about to go on feeling sorry for himself when suddenly he realized that even if he couldn't get the bread baked in half an hour, it would be better if he at least tried. After all there were customers depending on him.

Mr. Pickles stood up and brushed off the flour and cornflakes. The best thing to do, he decided, was to make the best of every situation - that's what his wife always said.

"Right Mr. Pickles." he said to himself, "Let's get busy."

He put on his white apron and his puffy white baker's hat, washed his hands and got started.

But poor Mr. Pickles had twelve orders to bake, and there were ten loaves of bread in each order - it would be impossible to get it all done in time. Even so, Mr. Pickles started making the dough for the first order. Then he kneaded it, put it in the 10 bread pans and then put the pans in the hot oven.

"Oh dear." sighed Mr. Pickles as he spilled flour everywhere in his hurry to start the next order, "Oh dear, oh dear, oh dear."

"Don't give up." whispered the little voice again. This time when Mr. Pickles looked around he saw a small goblin creature sitting on the edge of the mixing bowl.

"I must be going mad." declared Mr. Pickles, slightly surprised at the size of his visitor, "Who are you?"

"Mad? Not at all." chuckled the goblin, as she kicked up small clouds of flour, "My name is Gumboot and I've been watching you all morning. Not a pretty sight. I would have helped, you know, but there was nothing I could have done about the alarm or the car - jolly new fandangled elec... electra... electri... you know what I mean. Anyway, it was wonderfully funny for a while, but now you're in a right old mess and I think I might be able to help."

"Help?" said Mr. Pickles, "That's awfully nice of you, but what can you do? You're not even as high as the mixing bowl."

"Oh Mr. Pickles." cried Gumboot, "Just because I'm small doesn't mean I can't help. Besides, I brought a few of my friends along."

Gumboot suddenly whistled, and from all over the bakery at least a hundred little goblins came leaping and skipping towards Gumboot and Mr. Pickles. Poor Mr. Pickles didn't know what to do.

"All right boys." yelled Gumboot, "Our Mr. Pickles is in a bit of a pickle..." (all the goblins got great fits of the giggles), "...and he needs our help. Now, he needs eleven orders - there's one order already in the oven - with ten loaves of bread for each order. We've got about seventeen minutes. OK boys, positions."

Story

Suddenly the bakery was a rush of little goblins scrambling to their positions. Some stood by the mixing bowl, others by the bread tins, some were ready to pass the dough, some waited by the ovens, while others stood by the flour and milk. There were goblins everywhere.

Gumboot stood over them all, waving a menacing teaspoon as she yelled directions. Mr. Pickles just sat down in his chair feeling a bit odd.

As Gumboot began yelling her instructions to the goblins, Mr. Pickles saw the most amazing sight. You see, not only are goblins incredibly hard workers, but they also know a wee bit of magic.

Mr. Pickles watched in awe as the goblins threw flour, butter, milk - all kinds of ingredients - here, there, and everywhere, rolling dough along the benches, throwing it in the bread pans, then catapulting the pans across to the oven on a huge wooden spoon where, through some kind of magic, the bread cooked perfectly in seconds.

The most wonderful thing about it was that even though the goblins were making a most incredible mess, laughing and chuckling all the while, the bread was turning out perfectly. Soon Mr. Pickles was smiling... then giggling... and finally he was rolling around the floor in hysterics with the goblins. He was feeling much better.

As the goblins cooked the bread, they packed it and arranged it in the twelve orders. It took just twelve minutes and everything was finished. When Mr. Pickles managed to stop laughing and pick himself up off the floor he was shocked.

The bakery was spotless - with not even a trace of flour. The bread was neatly arranged in the twelve orders - each with ten loaves. The first order was for rye bread, there were two orders of sesame seed loaves, four orders of plain white bread, three orders of wholemeal bread and two orders of sourdough bread.

Mr. Pickles was so happy he couldn't stop grinning. He thanked the goblins at least seven times - they just chuckled and looked a bit bashful.

"Well boys," said Gumboot, "It's time we were off. We'll always be around, Mr. Pickles, if you run into another fine mess. But we usually find that the best thing to do on days like this is to just stay in bed." This sent the goblins into fits of laughter as they followed Gumboot out the bakery window.

"Good-bye." called Mr. Pickles, feeling a whole lot better. It's always good to know there's someone keeping an eye out for you.

Student Activity Sheet (TG)

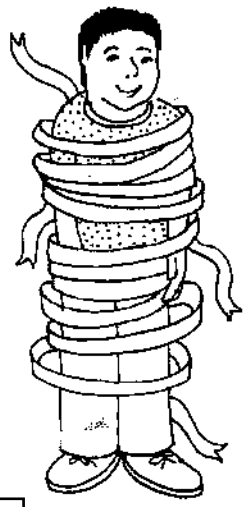
Mr. Pickles in a Pickle : Activities

Activity 1

- While you were listening to the story "Mr. Pickles in a Pickle" perhaps you pretended that you were there?
- Use your colored pencils to create the best picture you can of the story.

Activity 2

For this activity you will each make a 'filling' for a giant sandwich made with Mr. Pickles' yummy bread for your classroom wall.



You will need

strong paper	scissors
pencil	pins
colored pencils or crayons	
two long lengths of ribbon	

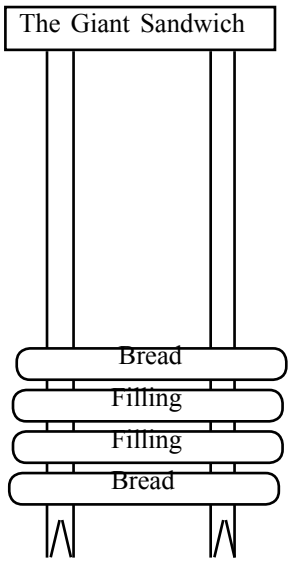
What is your favorite sandwich filling?
Cheese? Celery? Carrots? Coleslaw? Caviar?
Chocolate chips? Chicken? Cotton Candy?
(or perhaps peanut butter and jelly?)

This is what you should ask your teacher to do.

- Attach the two lengths of ribbon side by side to the classroom wall.
- Draw and cut out of strong paper two slices of bread for the sandwich using the surrounding box as a guide.
- Start off by pinning the bread to the ribbons, placing them at the bottom of the ribbons near the floor.

This is what you do.

- Draw a side-on picture of your favorite filling with your name in the middle.
- Use “the surrounding box” above as a guideline for the size.
- When you have memorized your 10 times tables, you may add your filling to the sandwich and watch it grow higher and higher!
- If your sandwich filling is already in the sandwich, you could help the other students so that soon the sandwich will reach the ceiling!



Mr. Pickles in a Pickle : Activities

Activity 3

This is a list of
Mr. Pickles' bread orders.

1 order of rye

2 orders of sesame seed

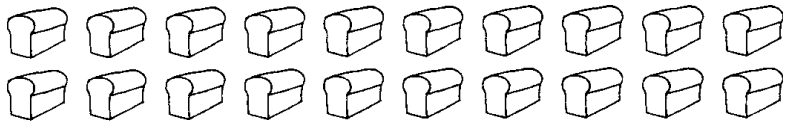
4 orders of white

3 orders of wholemeal

2 orders of sourdough

Each order was
for 10 loaves.

- Here is a drawing of the 2 orders for sesame seed loaves.



2 x 10 sesame seed loaves = 20

- Draw your own symbols for rye bread, white bread, wholemeal bread and sourdough bread. Make each symbol different.
- Use your symbols to make a drawing of the orders for each kind of bread.
- Remember to write a word sentence above each drawing and a number sentence below.

Rye Bread	White Bread
Wholemeal Bread	Sourdough Bread

Student Activity Sheet

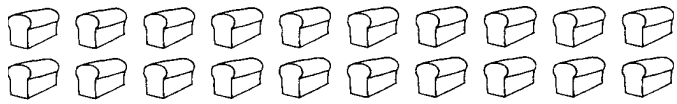
Table Summary

Gumboot and the friendly goblins got Mr. Pickles out of a pickle by making twelve orders of ten loaves of bread in just twelve minutes!

Can you fill in the empty boxes?

In 1 minute the goblins had made 1 order of 10 loaves --- 10 loaves in all
In 2 minutes the goblins had made 2 orders of 10 loaves --- 20 loaves in all
In 3 minutes the goblins had made 3 orders of 10 loaves --- ☐ loaves in all
In 4 minutes the goblins had made 4 orders of 10 loaves --- ☐ loaves in all
In 5 minutes the goblins had made 5 orders of 10 loaves --- 50 loaves in all
In 6 minutes the goblins had made 6 orders of 10 loaves --- ☐ loaves in all
In 7 minutes the goblins had made 7 orders of 10 loaves --- ☐ loaves in all
In 8 minutes the goblins had made 8 orders of 10 loaves --- ☐ loaves in all
In 9 minutes the goblins had made 9 orders of 10 loaves --- 90 loaves in all
In 10 minutes the goblins had made 10 orders of 10 loaves --- 100 loaves in all
In 11 minutes the goblins had made 11 orders of 10 loaves --- ☐ loaves in all
In 12 minutes the goblins had made 12 orders of 10 loaves --- ☐ loaves in all

We can write this in short form



In 1 minute the goblins made 10 loaves --- 10 loaves in all 1 x 10 = 10
In 2 minutes the goblins made 10 loaves --- 20 loaves in all ☐ x 10 = 20
In 3 minutes the goblins made 10 loaves --- ☐ loaves in all 3 x 10 = ☐
In 4 minutes the goblins made 10 loaves --- ☐ loaves in all 4 x 10 = ☐
In 5 minutes the goblins made 10 loaves --- 50 loaves in all ☐ x 10 = 50
In 6 minutes the goblins made 10 loaves --- ☐ loaves in all 6 x 10 = ☐
In 7 minutes the goblins made 10 loaves --- ☐ loaves in all 7 x 10 = ☐
In 8 minutes the goblins made 10 loaves --- ☐ loaves in all 8 x 10 = ☐
In 9 minutes the goblins made 10 loaves --- 90 loaves in all ☐ x 10 = 90
In 10 minutes the goblins made 10 loaves --- 100 loaves in all ☐ x 10 = 100
In 11 minutes the goblins made 10 loaves --- ☐ loaves in all 11 x 10 = ☐
In 12 minutes the goblins made 10 loaves --- ☐ loaves in all 12 x 10 = ☐

Teachers' Guidelines

Leap Goblin!

This is an outdoor activity based on the game of Leap Frog. It is designed to be played by a group of seven students and encourages the learning of the ten times table.

You will need

10 plastic hoops,
or chalk to mark 10 circles
card stock
scissors
pencils

Preparation

1. Divide the class into groups of seven 'goblins'.
2. Have each group of students cut out twelve pieces of card, the size of playing cards and on each card, write one pair of factors from the ten times table, together with the product. 1 x 10 = 10 to 12 x 10 = 120.
3. Ask the students to write on six of the cards the numbers 1 to 6. These are Goblin Numbers. Do the same with the next six cards. There should now be two cards for each of the numbers 1 to 6.
4. Choose one member of each group to be Gumboot - the head goblin.
5. Number the rest of the 'goblins' from one to six.
6. On the area where the game will be played, place the 10 plastic hoops in a circle, leaving a space where the circle begins and ends.
7. Each group takes it in turn to play the game while others watch and wait their turn, or playing areas may be marked for each group.

Play

1. Gumboot shuffles the cards, and, with cards face down, selects the first one.
2. He/she calls the Goblin Number on the card and then reads out the multiplication question from the ten times table, e.g. 'What is 7 x 10?'
3. The 'goblin' whose number is called must answer the question with '7 x 10 = 70' and may then leap to the first circle. The 'goblin' crouches in the first available circle.
4. Gumboot then calls the next Goblin Number and the next question.
5. The next 'goblin' called must answer the question and then leap over the 'goblin' in the first position, to take up the first empty circle (moving clockwise).
6. If any 'goblin' answers a question incorrectly, he or she must stay in their current position and not leap to the next position.
7. When a 'goblin' answers correctly, he/she may keep on leaping over 'goblins' until an empty circle is reached.
8. When a 'goblin' answers correctly and the next circle is empty, he or she must leap to that position, and not over the 'goblin' in front.
9. When all the cards are used up, they are shuffled and re-used.
10. The game ends when the first 'goblin' leaps off the last position.

Student Activity Sheet

Cooperative Learning

"Monday morning was the worst morning for his alarm not to go off because Mr. Pickles had twelve orders of bread to bake before the shop opened, and there were ten loaves of bread in each order. Mr. Pickles was in trouble."

Gumboot and the goblins got Mr. Pickles out of his pickle by baking his bread in twelve minutes so that he could open his shop on time.

1. If the goblins bake one order of ten loaves every minute, how many loaves had they baked after six minutes?

   ☐ x ☐ = ☐

2. If the goblins bake one order of ten loaves every minute, how many loaves had they baked after nine minutes?

   ☐ x ☐ = ☐

3. By the time they had finished the tenth order how long had they been baking?

   ☐

   How many loaves had they baked?

   ☐ x ☐ = ☐

4. How long did the goblins take to finish 5 orders?

   ☐

   How many loaves had they baked?

   ☐ x ☐ = ☐

5. After eleven minutes the goblins had baked eleven orders. How many loaves of bread was that?

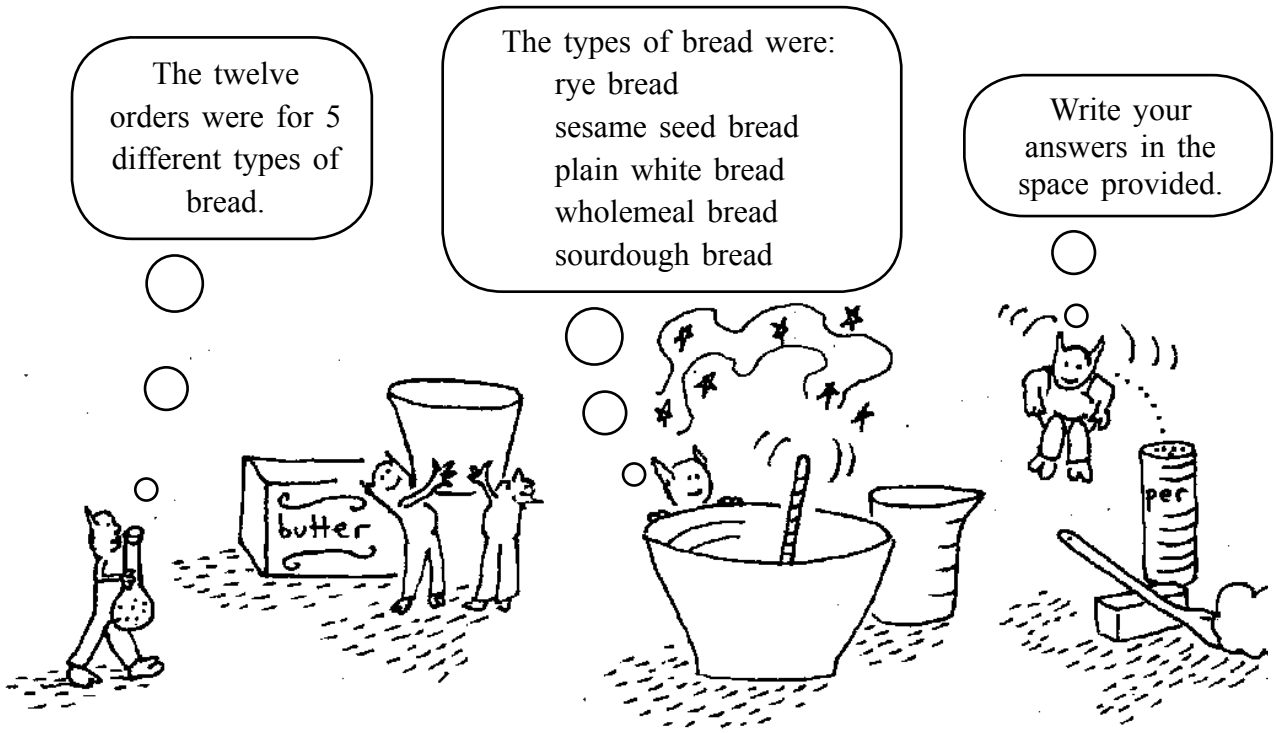
   ☐ x ☐ = ☐

   How many loaves would they have baked two minutes before?

   ☐ x ☐ = ☐

Student Activity Sheet

Cooperative Learning



6. There were ten loaves of rye bread and twenty sesame seed loaves. How many orders was that?

Answer ☐ x ☐ = ☐

7. There were forty loaves of white bread and twenty loaves of sourdough bread. How many orders was that?

Answer ☐ x ☐ = ☐

8. There were four orders for plain white bread. How many loaves was that?

Answer ☐ x ☐ = ☐

9. There were two orders for wholemeal bread and three orders for sourdough bread. How many loaves of bread was that?

Answer ☐ x ☐ = ☐

10. There were twelve orders in all. How many loaves of bread did Gumboot and the goblins bake for Mr. Pickles?

Answer ☐ x ☐ = ☐

11. Write down your favorite bread.

Answer

Pages included in this sample are in red

Multiplication Tables: Part 1 (Tables 2, 3 and 4)

Multiplication Tables : Part 2 (Tables 5, 6 and 7)

Multiplication Tables : Part 3 (Tables 8, 9 and 10)

Multiplication Tables: Part 4 (Tables 11/12)