



Erasmus+



Permaculture in Schools



Introduction and content



This e-book was created as part of an Erasmus+ project by European partner schools from Croatia, Iceland, Malta and Macedonia. It aims to promote permaculture and healthy food in schools.

We hope it will encourage other schools to introduce permaculture to young pupils. Our pupils enjoyed this journey and we hope you find it as interesting and as educational as we did.

In Permaculture we sow seeds and watch them grow. The same applies for Education.

Contents

Recipees

Chia seed pudding

Tagliatelle

Icelandic Marriage Cake

Ajvar

Maltese Pastizzi

Maltese Bigilla

Icelandic Meat Soup

Permaculture lesson plans

Schools involved

Artunsskoli Iceland

Opshtinsko osnovno uciliste Simitar Makedonski Skopje Macedonia

Osnovna skola Zlatar Bistrica Croatia

Skola ta' Santa Giovanna Antida Gudja Malta



Photo by [Tate Escobar](#)

Chia Seed Pudding

Chia seed pudding could be a great breakfast or dessert. It is healthy, full with proteins and vitamins.

Ingredients:

1 Cup milk (cow, coconut or rice milk)

6 tablespoons Chia Seed

1 spoon honey

Fresh fruit

Instruction:

Put the milk and seeds into a bowl. Mix them well and add honey. Continue to mix them and let stand for 30 minutes. Cover it and put it in the refrigerator for 3-4 hours. After that at the top put fresh fruit - strawberries, bananas, raspberries, apples - as you wish. The pudding could stay in the refrigerator for 2 days.

Bon appétit

Stefani Nakova

Primary School Dimitar Makedonski, Skopje North Macedonia

Traditional Macedonian pasta

Pasta - tagliatelle, noodles, jufki...

• 60 minutes

Ingredients

- 15 eggs
- 2 kg flour
- 250 ml milk
- 200 ml oil
- 100 gr. salt

Preparation

1. All ingredients are mixed in to a dough. The dough stays 30 minutes
2. Divide the dough into two parts and each part into 30-35 small balls
3. The balls are put in a pasta machine and different forms are made
4. Dry the pasta 3-5 days
5. Cook them with different sauce





Macedonian Ajvar

• 5 - 6 hours

Ajvar

Ingredients

- 30 kg red peppers
- 3 large eggplants
- 2 liters of oil
- sugar
- salt

Preparation

- roast the peppers
- cool them down
- peel them off
- Grind them
- fry the mix
- put the ajvar in jars





Bon appetit



Healthy Pea Pastizzi

By Amanda Pocock

Ingredients

- A can of soft peas (marrowfat)
- ½ a small onion (finely chopped)
- 1 teaspoon olive oil
- ¼ teaspoon mixed spice
- ¼ teaspoon curry
- ¼ teaspoon salt
- ¼ teaspoon pepper
- 4 slices of sandwich toast (white or wholemeal)

Items needed

- Sandwich toaster or a grill pan
- A rolling pin
- A fork
- A spoon
- A masher
- A knife

Step 1

- Cook the onion in the olive oil together with the spices until soft and golden.



Step 2

- Add the well drained can of peas to the cooked onion and cook for a few more minutes to dry out. Add the salt and pepper.



Step 3

1. Mash well with a masher. It should be a thick paste.



Step 4

- Roll out the sliced sandwich bread with a rolling pin and cut away the crusts.



Step 4

- ❑ Roll out the sliced sandwich bread with a rolling pin and cut away the crusts.



Step 5

- ❑ Fill the bread with 2 tablespoons of filling and fold on itself to form a triangle.



Step 6

- Use the fork to close the ends, then toast in the sandwich toaster until golden.



Step 7

- Enjoy!





Bigilla

Traditional Bean Dip

A humble dip made with ful medames

Ingredients:

200g ful medames (or tic beans)
1 bay leaf
water
2 tbsp. olive oil
1 tbsp. brown vinegar
1 clove garlic
salt and pepper
parsley or another herb to decorate
crackers or crusty bread to serve



Soak the beans overnight in plenty of water.

Make sure that they are well submerged in water.



- Boil hard for the first 20 minutes then reduce heat to medium and cook for about 1.5-2 hours until the beans are soft on the inside.
- Remove the bay leaf.



Place the cooked beans in a processor together with garlic, olive oil and vinegar. Add salt and pepper to taste.



You might need a few tablespoons of the cooking liquid to help you process it into a thick paste.



Íslensk hjónabandssæla (*Icelandic "Happy Marriage cake" / Rhubarb bake*)

1 cup oatmeal
1 cup all-purpose flour
1/2 cup brown sugar
1/2 cup white sugar
1 teaspoon baking soda
1 cup salted butter (softened and cut into pieces)
1 egg
1 teaspoon vanilla extract
3/4 cup rhubarb jam

1. Preheat the oven to 200 C / Gas 6. Grease a 23cm round or a 20cm square cake pan.
2. In a bowl, mix oats, flour, baking soda, brown sugar and sugar. Add the butter and work in with your fingers until you obtain a crumbly mixture. Add egg and vanilla and mix until evenly combined.
3. Spread two thirds of the pastry in the prepared pan and spread the rhubarb jam on top. Roll out the remaining pastry and cut into long strips with a pastry wheel. Place the strips on the filling in a decorative pattern.
4. Bake in the preheated oven until golden brown, about 40 minutes.

RABARBARASULTA (Rhubarb Jam)

500g rhubarb, cleaned and chopped to 1 cm bits
250g sugar
vanilla extract (optional)
1 Tbsp water

Put all the ingredients in a pot, simmer for ca 45 minutes or until it looks like a light brown jam. Stir occasionally.

Íslensk kjötsúpa *(Icelandic Meat Soup)*

2 Tbsp. olive or sunflower oil

1 tsp. finely chopped garlic

3 pounds lamb, on the bone (shanks, thick chops or shoulder, whatever is cheapest)

1 medium onion, sliced

½ cabbage, roughly chopped

3 carrots, diced

½ rutabaga, diced

1 cup cauliflower florets (optional)

4 potatoes, diced

6 cups water

2 handfuls of fresh or dried herbs, (f.ex. rosemary, thyme, sage, oregano, lovage (sparingly if you are not used to it))

Lamb bouillon

Salt

TIPS: *You can use whichever vegetables you have at home.*

Adding rice or rolled oats towards the end makes a thicker stew.

You can skip the meat if you like.

1. In a large pot or dutch oven, briefly sauté the garlic in the oil for 1-2 minutes over medium heat (do not brown). Add the lamb pieces and brown on all sides. Add the sliced onion to the pot and sauté very lightly (about 1 minute), then pour in the water. Raise heat to high, bringing the soup to a low boil; allow to boil for 5 minutes, skimming away the froth as it rises.

2. Reduce heat to medium, stir in herbs, cover pot, and cook for 40 minutes.

3. Add vegetables. Cook, covered, for an additional 20 minutes, or until vegetables are fork-tender.

4. Remove meat and bones from pot, chop meat coarsely, then return. Taste the stew and add bouillon and salt if you like. Warm for an additional 5 minutes. (Alternatively, some Icelanders will remove the lamb and potatoes from the pot and serve these on a plate, separately from the soup. If presenting the meal this way, chop the potatoes into larger, 1" chunks).

Croatian traditional recipies



School Permaculture Garden SPG5 Primary school Zlatar Bistrica

Permaculture lesson plan

SUBJECT:	Multidisciplinary: School library, Croatian, Science, Art
TOPIC:	Reading and exploring about plants in school permaculture garden-workshop
AGE:	10 years old
MATERIALS:	Pencils, working sheets, encyclopedias, poster papers, whiteboard, markers, children magazines about nature
GOALS:	<p>The student:</p> <ul style="list-style-type: none">- recognizes plants in the school garden and describes them orally and in writing- uses literature in research work- writes notes and abstracts- separates the important from the irrelevant- knows how to list the plants that grew in the school garden- knows how to find information in encyclopedia and childrens magazine- develops lifelong skills- develops motivation to read, gain reading skills- develops better communication and understanding of text-
TIME:	90 minutes
TEACHER:	Snježana Kovačević, school librarian

Instructions:

I. Pupils play a game of guessing vegetables in the game *Guess who I am*. Pupils play that game in pairs. One pupil takes a card with vegetables, show it to another pupil and starts asking the question about it. Other pupil answers the question and the first one need to guess the name of the vegetables.- 15 minutes

After the game, pupils evaluate the activity by numbers 1 to 3(1-it was very motivating, 2-it was motivating, 3-it wasn't motivating)

II. Pupils and teacher are sitting in the garden in the circle. They are discussing about gardening, gardens, healthy food, about permaculture, the importance of staying in the fresh air and simmlar topics. Teacher uses encyclopedias and childrens magazines about nature to motivate them to be more active in the workshop. They read aloud about different kinds of plants, about nature, ecology, healthy food and lifestyles, etc.- 15 minutes

Pupils evaluate the activity by output cards- writing three things they learned during the coversation with other pupils and teacher in the garden.

III. Pupils are divided into teams and they get tasks: **1st team** needs to go around the garden and see which vegetables grew, write its names and draw them on the poster paper; **2nd team** needs to describe 5 vegetables they notice in the garden (color, its size, the shape, etc); **3rd team** needs to explore about the nutritional value of vegetables from materials teacher prepared for them and write their notes on the poster paper; **4th team** needs to come up with funny advertisement for selling vegetables.- 30 minutes

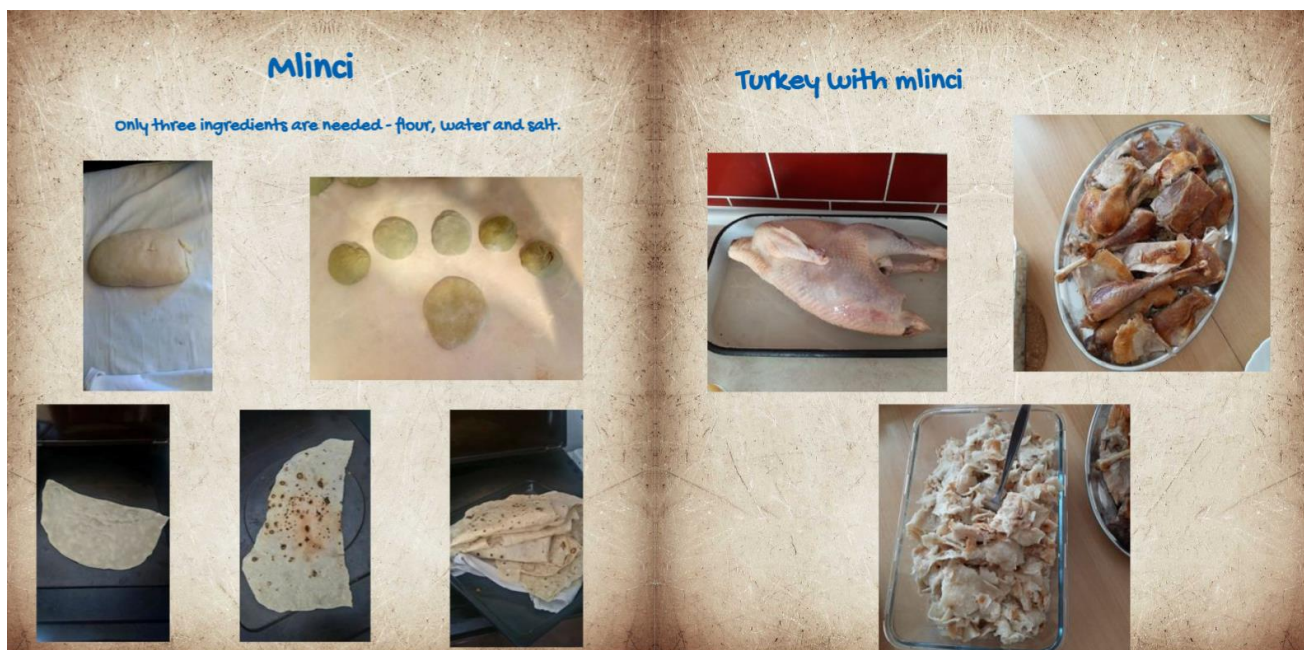
At the end of the activity they need to write one word on the whiteboard about how did they feel during the activity.

IV. Presentation of pupils work. Pupils choose a team member who presents their group work. After the activity pupils have peer to peer/group to group evaluation pointing out what was good, interesting, motivating, creative, etc. They use post-it papers, write their oppinion and stick it on the whiteboard. – 30 minutes



The link to the e-book with traditional recipes:

<https://read.bookcreator.com/10pUwjBezdgI2H8qeDYaM2KLNgn1/r5qij0EUTHmkdKgCj3vXNw>



Duck with mlinci



Ham in bread



Corn žljevka with jam

Beat the eggs add some oil, flour and baking powder and mix it well. Stir in solid egg whites and milk - the mixture should be as thick as pancakes. Put some butter/oil or lard in a baking sheet and then pour the mixture into it. You can put some jam into the mixture, as well. The flavour is much better. In the end, put the baking sheet in the preheated oven at 200 - 210 degrees and bake it until it gets golden brown colour.



Štrukli

Ingredients: 400 g smooth flour 1 egg 4 tablespoons oil 1.5 dl water (if desired, you can halve the amount of water and add 1-2 eggs) 1 teaspoon salt For the filling: 500 g fresh cow's cheese 1 egg 2 small tablespoons salt a little oil For the topping: 300 g sour cream



Štrukli with cheese
and apples



Digana gibanica with poppy
seeds and walnuts



These traditional recipes were prepared and photographed by the parents of students in the 4th b grade of the Primary school Zlatar Bistrica for the Erasmus + project School Permaculture Garden

Project coordinators Snježana Kovačević i Andreja Jertec

December 2020

**Gardening and environmental activities in
Primary school Zlatar Bistrica**

<https://read.bookcreator.com/g5o0YCvkyqM7M0jpYR0Tx5mxL672/miqRxtclTz-nFJ5DaZmYsg>

Erasmus+ project
School Permaculture Garden
SPG5

In Grandma's Garden...



Onions (Lat. *Allium cepa*)
Luk on Croatian

Lettuce (Lat. *Lactuca sativa*)
Salata on Croatian





Strawberries (Lat. *Fragaria*)
Jagode on Croatian



Rosemary (Lat. *Salvia rosmarinus*)
Ružmarin on Croatian

Watering the soil... Plants need water to grow. Also, they need sun, fresh air and somebody to talk to for better crop :)



Čuvarkuća (*Sempervivum tectorum* L.)



The leaves are thick, juicy, the first top narrowed into a spike, arranged in a ground rosette

Ledinjak ili zlatica (*Ranunculus ficaria* L.)

Little yellow flower that grows in deciduous forests, orchards, gardens...



<https://www.enciklopedija.hr/>

<https://www.plantea.com.hr/ledinjak/>

TAKE CARE OF NATURE.

WE HAVE TO THINK ABOUT A HEALTHY FUTURE!

Permaculture lesson plan (Lesson 1) Time: 40 min.

Subject:

Integrated: Natural sciences, IT,

Topic:

Starting a permaculture garden at school

Age:

9– 10 years

Materials:

Small whiteboards, markers, working sheets, pencils, computers/tablets, seed,

Goals:

The student:

learns about plants that can be grown at school

Is able to make difference between permaculture garden and organic garden

learns to read information and instructions on the internet and choose useful ones

knows how to sow seeds in flowerpots

learns to know and grow different plants

Develops life skills

Understands the basics of permaculture

Improves communication and group working skills

Instructions:

1. The students are advised to research the internet about the meaning of the word permaculture and look for the difference between permaculture garden and organic garden.

The students are divided in two groups. The first group makes research about permaculture gardens and makes charts of the findings, while the other one researches organic gardens.

After that they compare their data and take notes of the similarities and differences.

2. The students read their notes and a discussion is developed. After the discussion they agreed on the fact that a permaculture garden is a place where you grow healthy products through the nature's way of developing and that permaculture is more of a way of life not only in gardening but understanding the world and nature in whole. In the other hand organic gardening is more of a commercial label for production of healthy produce.

After realising the benefits of permaculture the student discuss about production of healthy produce in the school garden. They make a list of all necessary materials and support they will need.

3. The lesson and the class move to the school yard to spot the perfect place for proceeding with the plan. The teacher initiates a discussion about what is needed for a plant to be planted and be able to grow. The students are prepared and have the basis to continue with the next lesson that will be in a garden center where agricultural experts will show them how to plant seed and seedlings so they become grown plants. The seeds and seedlings is planned to be started in a pot and then transferred in the school yard when time comes.

Lesson plan Primary School Dimitar Makedonski - Skopje, North Macedonia(Lesson 2)

Subject: Science

Title: Let's grow together

Age:9-10 yrs

Materials: Acorns, seedlings, pots, water, garden tools, soil

Aims: Student will be able to

- recognize evergreen plants
- name the characteristics of the evergreen plants
- plant an acorn, nourish it and keep data of the process of growing
- take care of nature

Introduction:

The teacher initiates a conversation with the student about growing and the growth process in people i.e. how are they (the students) growing up. Then they play a game of association. Then they make a comparison of the growth process in people and plants.

Main part:

The students with their teacher visit a garden center and get to know the place. They interview the experts there. Under guidance of the experts students plant the acorns. They learn about the way the acorn should be taken care of, what is indeed to be planted correctly look after it and what conditions it needs to grow properly.

Conclusion:

The students plant the seedlings in the school yard and each student has a tree in progress to take care of. They keep a diary of its growth.

Ártúnsskóli 3 lessons plan Time: 3 x 40 min.

Subject:

Integrated: Natural sciences, IT,

Topic:

Starting a permaculture garden at school

Age:

10 – 11 years

Materials:

Small whiteboards, markers, working sheets, pencils, computers/tablets, seed, flowerpots, soil, water, potatoes, shovels

Goals:

The student:

- learns about plants that can be grown at school
- learns to read information and instructions on the internet and choose useful ones
- knows how to sow seeds in flower pots
- learns to know and grow different types of herbs, salad and potatoes
- develops lifelong skills
- knows the words permaculture and environmental footprint
- improves communication and group working skills

Instructions:

1. Motivation game and introduction: Pupils work in pairs, each pair has a whiteboard and a marker. The teacher asks pupils to write on the whiteboard five things that are green, when told pupils show their board. Next the pupils are asked to write three things that are green and edible. The third question is to write three things green, edible and that they would like to grow. (Give 1- 2 min. for each question, between questions 30 sec. to find a new partner) All answers to question three are written down to use in the next part. Discuss the benefits of growing your own food and reduction of an environmental footprint.
2. Pupils work in pairs/groups of three, each group has a worksheet, a pencil and a tablet and one of the plant names written in step 1.

Plant: _____

Can we grow this plant at school?

Yes. → No. → Why not? _____

Requires bright light. → Indoors → Needs low light. → In a flowerpot. → In a plant bed.

Outdoors → In a plant bed.

What equipment do we need? → Ideal conditions for the plant: _____

How could we use the plant in cooking? _____

They fill out the worksheet and tell their classmates the results. Discuss the need for equipment, if it is necessary to buy something or not. Maybe some pupils want to ask at home if they can get used things for the project. Pupils and the teacher decide what to plant/sow first. Discuss what the plants require to grow, the meaning of permaculture and how it relates to the idea of growing edible plants at school.

3. Outdoor lesson (time depends on size of crops and number of pupils): Pupils learn how to prepare crops for planting and sowing. Then sow seeds and put potatoes properly down into the soil. Seeds for indoor growing are sown in flowerpots with watered soil.

Permaculture Lesson Plan Malta

Time:

Flexible

Subject:

Integrated: Natural sciences, Life Sciences, Biology, Geography

Topic:

Permaculture garden at school

Age:

4– 12 years

Materials:

Seed, soil, shelves, rocks, glass box, pot, dry leaves, twigs, sticks, household waste(vegetable scraps, shredded newspaper, tea bags, coffee grounds, eggshells, etc.), earthworms, container, sump or barrel, equipment for boiling, paper, pencil, jar

Goals:

The student will:

- Be aware of the world facing water crisis now and works to prevent it by traditional methods such as collecting rainwater
- Learn to use the opportunities that mother nature offers us
- be able to make difference between permaculture garden and organic garden
- be able to cultivate their own vegetables and fruits
- be able to observe different types of layers in soil
- learn how to be patient
- understand to importance of permaculture
- know the basic principles of taking responsibility for the waste they generate through composting
- know how to sow seeds in flower pots
- learn to know and grow different plants
- develop life skills
- understand the basics of permaculture
- improves communication and group working skills
- be aware of that they can have fun by spending time with nature

The word permaculture derivatives from the combination of permanent and agriculture. The garden we are going to create can be named Food Forest. But it would be nice to ask the students to choose a name for the garden so that they can feel the garden belongs to them.

Permaculture brings hope, responsibility, patience to the children. It teaches to love, and what you love you protect. Also it is important to understand the concept that helps people appreciate human-earth connection.

Warm-Up Activities

Feel the Nature

Instructions:

1. Teacher does not want them to do research and get bored. Teacher wants them to play with soil and observe nature to engage them in permaculture. Teacher wants them to touch and smell the soil. Teacher wants them to eat straight from the food forest so that the students can understand permaculture is crucial for humanity

Learning Nature

Instructions:

1. Teacher shows them videos about permaculture and prints posters for the first lesson to motivate them. And teachers need to encourage them to prepare a board so that they can hang the activities they have done.

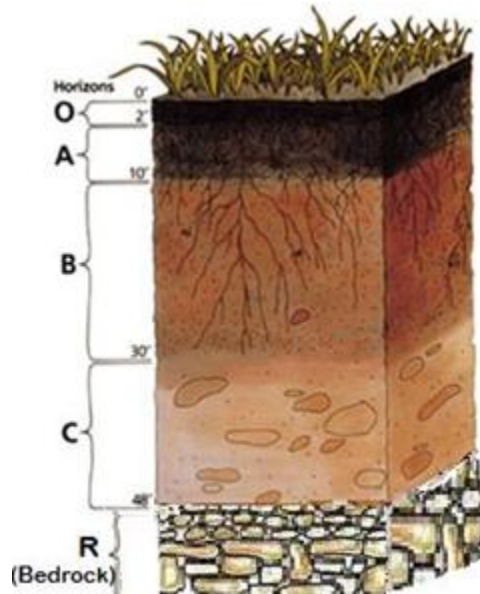
2. The students may watch some animations about permaculture to make them interested in the lesson. <https://youtu.be/a44NFSiln54>

Learning Layers of the Soil

Instructions:

The students create a model which shows horizons of the earth as the picture below. Teacher wants the students to observe different types of layers in soil and forest and explains the horizon's role.

The model will be put to the permaculture corner in the school so everyone can observe it.



Harvesting Water

Instructions:

1. Rainwater can be collected for individual homes, schools as well as for the larger community. Take the help of students to install a rain barrel at the school. They can do so by placing a large drum outside and connect it with pipes to the roof or to the verandah. To prevent the breeding of mosquitoes in the barrel, fasten a lid tightly on top of it. Another way of collecting rainwater is to simply place big buckets or a student's swimming pool in the garden, verandah or the roof. However, make sure you treat and use the water immediately, so it doesn't become a breeding ground for mosquitoes.
2. While rainwater is one of the most important sources of freshwater, it can't be used for consumption directly. The water that you collect may contain debris, metals and even chemical or microbiological contamination. So, it's essential that the water is treated before it is used for domestic consumption. You can store the treated rainwater in barrels or sumps.
3. Boiling: This is the best way to kill pathogens. Filter the water using a strainer or a porous cloth and then bring the water to a boil. Let it cool down completely before you use it for washing vessels, watering the plants or washing any equipment.

Composting Techniques

Instructions:

1. Pupils will enjoy making compost in a two liter soda bottle, and they can use the finished product to grow their own plants.
2. Rinse out the bottle, screw the top on firmly, and remove the label.
3. Make a flip top in the bottle by cutting most of the way around about a third of the way down the bottle.
4. Place a layer of soil in the bottom of the bottle.
5. Moisten the soil with water from a spray bottle if it is dry.
6. Add a thin layer of fruit scraps, a thin layer of dirt, a tablespoon of fertilizer, chicken manure or urine, and a layer of leaves. Continue adding layers until the bottle is almost full.
7. Tape the top of the bottle in place and place it in a sunny location. If moisture condenses on the sides of the bottle, remove the top to let it dry out. If the contents look dry, add a squirt or two of water from a spray bottle.
8. Roll the bottle around every day to mix the contents. The compost is ready to use when it is brown and crumbly. This takes a month or so.

Treasure Game

Instructions:

Teacher embeds the seeds under the soil in the garden.
Teacher wants them to dig and find the secret treasures.
This game plays an important role because it makes the students understand the seeds are treasure for earth.
After the students find the seeds, the teacher can explain how to cultivate the seeds.

Letters to themselves in the future

Instructions:

Teacher wants them to write letters to themselves in the future and embed the letters in the garden while planting the seeds or trees.
Then the students are going to find this letter at the end of the year.