MEET SUMPURNIS AND HIS FRIENDS!

DO YOU KNOW WHAT A SUMPURNIS, A WEREWOLF, A VADĀTĀJS, AND A VAMPIRE ARE AND HOW THEY ARE RELATED TO BATS?

Ancient Latvians believed not only in such deities as Laima, Pērkons, and others familiar to every Latvian, but also ignoble mythical creatures. Usually, they were related to various evil activities and events, such as drinking blood, killing, and haunting.

In Latvian mythology, **A SUMPURNIS** is a mean manlike creature with human body and a dog's head (sometimes also with a bird's head, one eye or one leg). An enraged sumpurnis would attack people, tearing them apart, eating their flesh, and drinking their blood. If a sumpurnis did not eat a person right away, they would tie the victim up and hold them in captivity for later.

A WEREWOLF a mythological human being who is able to transform into a wolf or a wolflike creature, purposefully or after being bitten by a werewolf, or under the influence of a curse. Werewolf is a popular character in modern fantasy books and films.

A VADĀTĀJS is an evil spirit that deceives people, takes them on a wrong path, especially in the woods. Vadātājs is sometimes associated with the Devil or veļi – spirits of the dead; however, for the most part they act as separate and independent mythological creatures.

Whereas bats are most often associated with vampires, who have become famous a long time ago – in the 18th century – and have been rather devoted blood drinkers ever since. To tell the truth, vampire bats do exist, but they are not found in Latvia.

A VAMPIRE is a mythological creature who survives on blood. A vampire is usually a deceased human that has come to life. Different supernatural abilities are also often attributed to vampires, such as supernatural physical strength and speed, the ability to shapeshift into animals, to influence the weather, etc. In some cultures, vampires are also depicted as demons or animals (bats, dogs, spiders, etc.). The image of a vampire is very popular not only in folklore, but also in films and literature.

This allows us to conclude that all these creatures have things in common.
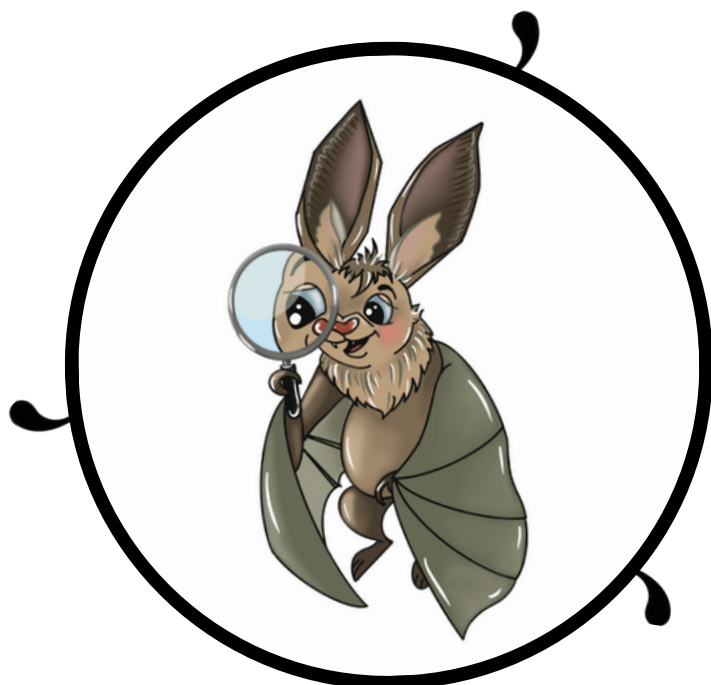
Tasks:

Look at the sumpurnis in the attic of the Manor and mark which features a bat and a sumpurnis have or do not have in common! Think – perhaps any of the features below are also characteristic of a werewolf, a vadātājs, or a vampire?

Characteristic features	A BAT		SUMPURNIS	
	YES	NO	YES	NO
Big				
Dangerous, attacks people				
Real				
Has a tail				
Has wings				
Looks dreadful				
Makes noises that people cannot hear				
Sometimes lives in attics				
Likes hanging upside down				

Draw all these monsters in one drawing together with a bat!

A BAT, VADĀTĀJS, WEREWOLF, SUMPURNIS, VAMPIRE

Task:

Write your own fairy-tale, legend, or story using the objects that are found in the Lūznava Manor park – ponds, remains of the old building, sculptures of Madonna and the Apple Tree, the playground, the spruces of the Alley of Love, the old wooden school, the barn and the community garden at the former school stadium. The more different objects you include, the more interesting your story will be. Of course, you have to write about bats, but it would be even more interesting if you also mentioned a werewolf, a vadātājs, a vampire, and a sumpurnis. Remember that your story has to be believable and unbelievable, horrifying and sweet at the same time!

Your drawing can be an illustration to the story, so decide whether you want to draw before or after your story is ready.

| A BAT | SUMPURNIS | WEREWOLF | VADĀTĀJS |

| VAMPIRE | POND | MADONNA | APPLE TREE |

| PLAYGROUND | THE ALLEY OF LOVE | COMMUNITY GARDEN |

| OLD WOODEN SCHOOL | REMAINS OF THE OLD BUILDING | THE BARN |

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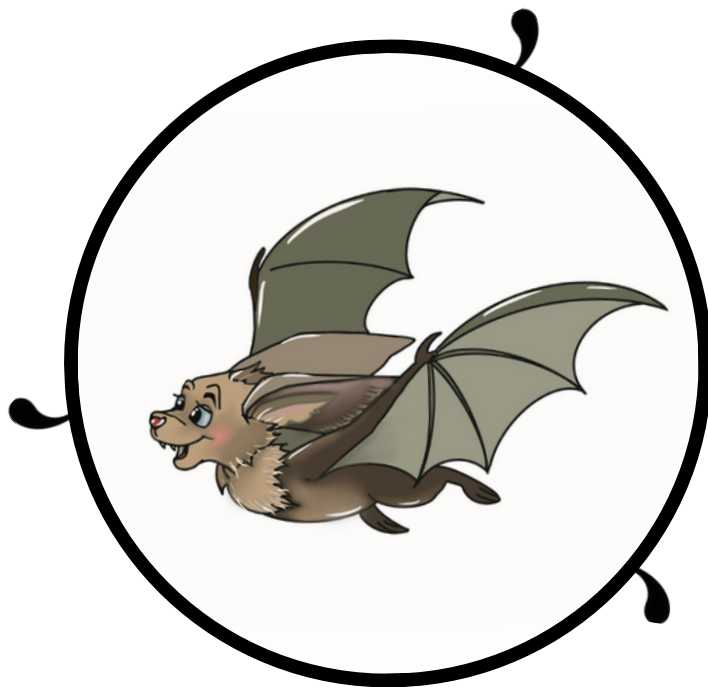
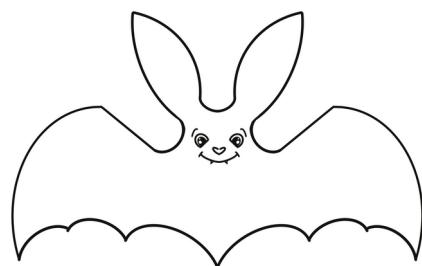MŪZIS

GOOD LUCK WITH YOUR CREATIVE WORK!

SPORTS AND ART WITH BATS

Tasks:

1. Create an image of a bat on the ground using materials found in nature! Use the outline of a bat to help you. Do not harm nature for the materials and collect only those which nature doesn't need anymore or has plenty (such as fallen leaves, cones, sticks).

2. Use your steps to calculate (one step = approximately 65 cm) how many metres a bat has to fly from the entrance to his home (in the roof of the Lūznava Manor) if he wants to have dinner over the nearby pergola by the nearest pond!
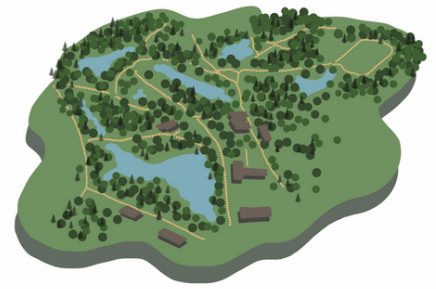
3. Show the movement how a bat flies! Create a special "bat dance" and dance it out! The dance has to be at least 1 minute long.

4. Find the spruce alley in the park and practice long jumps! Can you do a running or standing jump from one spruce-tree to the next?

Worksheet #2

5. Get acquainted with the Lūznava Manor park in order to better understand where bats live! People have always enjoyed taking walks in this park. Imagine that you live in the 19th century and are having a walk in the park. Show others how you would behave if you were a 19th century sir or madam!

6. Walk around the Lūznava Manor park and count how many ponds you can find. Ponds are one of the favourite places for bats to feed. Memorize the view of the ponds and its surroundings because your homework will be to draw or paint for at least half an hour and show one of the park's ponds and its surroundings on paper. If you don't trust your memory, take a photo of the landscape and draw or paint at home from the picture.

7. There is a wooden bridge over one of the ponds. Guess what this bridge and Latvian bats have in common! To find out, you need to cross the bridge making steps about 1 metre in length.

8. Did you know that bats spend a large part of their life upside down, hanging by their legs in the attic under the roof or in caves and basements? Even bat mothers bring their babies into the world handing upside down! People, of course, don't do that. But you can try out how a bat feels in two ways. First – do a "cartwheel", and second – try a handstand or even a headstand, supporting your legs against a tree or a wall. Do this only when supervised by an adult, to be safe!

9. Find a very wide tree in the park (the park has many wide lindens, larches, and other trees) and check how many people does it take to embrace the tree. The tree's circumference has to be measured 1.3 metres above the tree's root collar. Then measure the tree's circumference in short spans (distance from the thumb to the index finger), but later you can convert this distance to centimetres. This way you can find out the circumference of the tree. You can find information about Latvian veteran trees here: https://ej.uz/dizkokiem

10. Create and sing or otherwise perform your own (maybe your very first?) composition – "Bat march"! You can use the following instruments for a good sound – your voice, tree leaves, grass stems, small stones, or anything else you can find in the nearest surroundings without harm to nature. You can even find an interesting musical instrument at the children's playground by the park. If you want to commit your performance to memory, organise a dress rehearsal first and have someone film it!

MŪZIS

MY RICH VOCABULARY
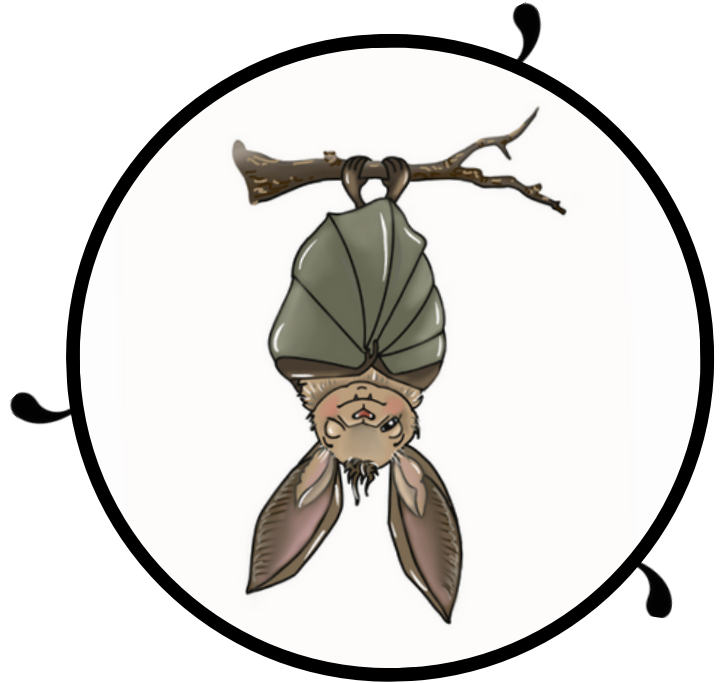
Task:

Find out what names bats are called in other countries!

What's a flying mouse? Exactly the same thing as a bat! It is a literal translation of the German word for a bat **FLEDERMAUS** which literally means "flying mouse", just like in the Russian language – **ЛЕТУЧАЯ МЫШЬ** (letuchaya mysh).

However, in English the word is very short – **BAT**, and it can also mean a club or a rod/stick.

The Latvian word for a bat is **SIKSPĀRNIS**, and it sounds quite similar in Lithuanian – **ŠIKŠNOSPARNIS**, but in Estonian it is completely different – **NAHKHIIR**

The French name of the animal sounds funny – **CHAUVE-SOURIS** means "bald mouse".

Italians call all bats **PIPISTRELLI**, and the word most likely originates from Latin.
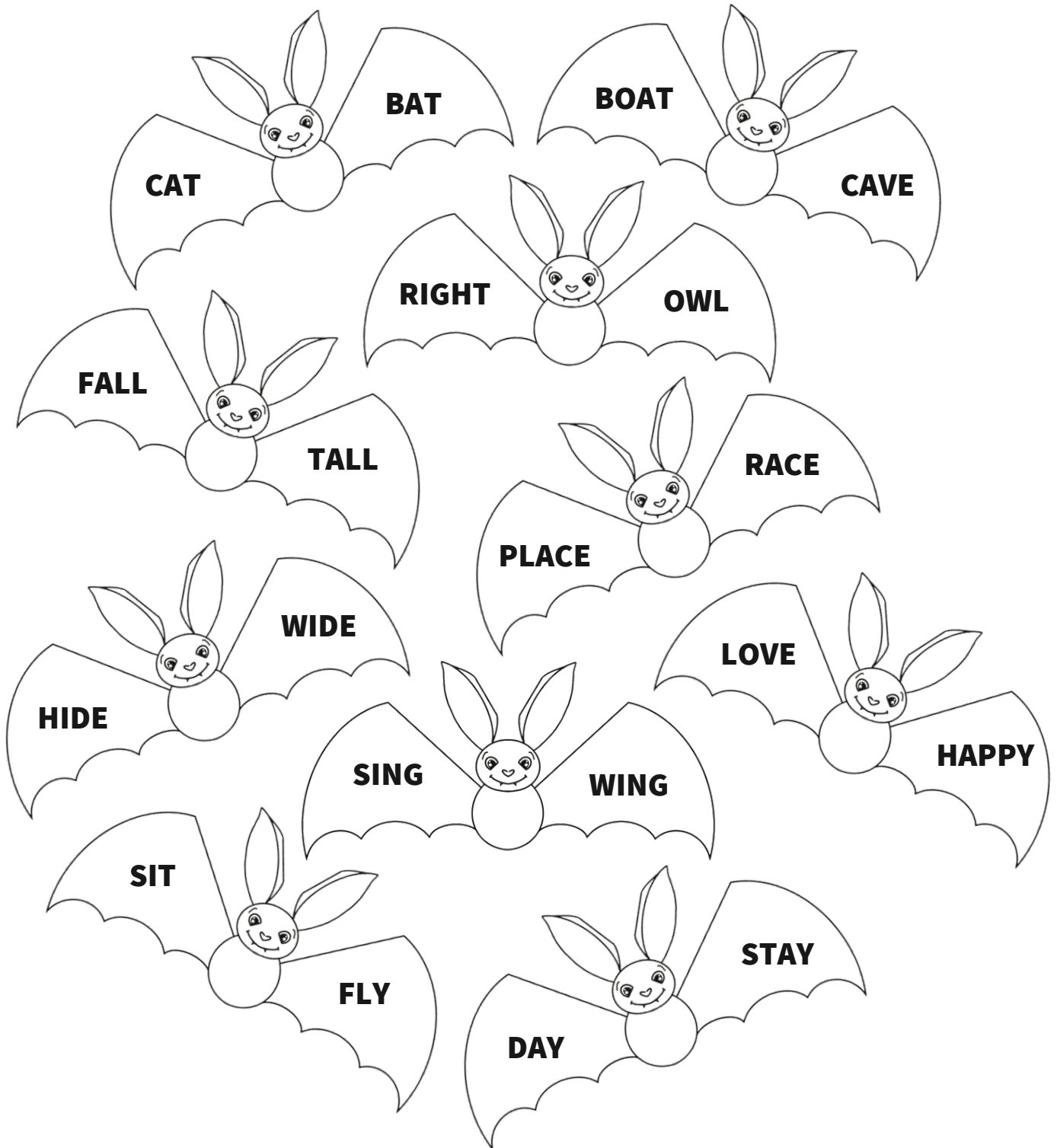
Tasks:

The task is to be performed in pairs or in groups. Ask your partners to name 20 different interesting adjectives which you are going to use in the order given to fill in the missing words in the text below. Then read the complete text aloud.

Once upon a time, there lived a(n) …………………..……... girl bat. She was very ………………..………, which is why she did not have the courage to get acquainted with a(n) ………………..………… boy bat who hovered over the ………………..……… Lūznava Manor park every night. The girl liked him a lot. One …………………..…………. summer night the girl bat finally plucked up the courage and flew up to the …………………..………. boy bat. It was easy to get acquainted because the …………………..………… boy bat was in a(n) …………………..…………... mood. They both decided to treat themselves to …………………..……… insects. The boy caught a(n) …………………..………. night-moth first and ate it while flapping his …………………..………… wings. The …………………..……… girl was not so lucky – she was catching only …………………..……. mosquitos and …………………..…………… midges all the time. When …………………..………… friends were finally full, they decided that they already needed to think about a(n)…………………..…………….. place to spend the winter. But – oh, no! They each belonged to a different species! The …………………..………… boy had to leave for a warm place in autumn, but the …………………..………… girl stayed to spend the winter in a(n) …………………..……... Latvian sandstone cave. Did this …………………..……... friendship have a future?
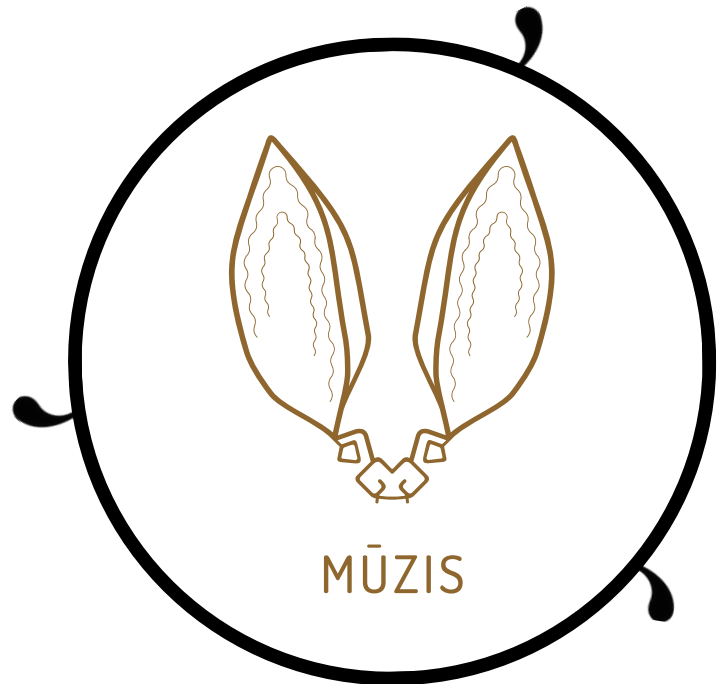
List 4 animals (mostly insects) that bats like to eat. Each word has to start with a different letter and no two words can have the same number of letters.

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Task:

Colour those bats which have rhyming syllables on their wings!

BAT

BOAT

CAT

CAVE

RIGHT

OWL

FALL

RACE

TALL

PLACE

WIDE

LOVE

HIDE

HAPPY

SING

WING

SIT

STAY

FLY

DAY

MŪZIS

KNOW OR GUESS

MŪZIS

Task:

Choose which answer is correct in your opinion – a, b, or c! Count the points you earned using the answer table provided and check which level you have achieved!

1. How many "fingers" does a bat's "hand" have?
a) 5
b) 4
c) 3

2. Which sense is the most developed in bats?
a) Vision
b) Sence of smell
c) Hearing

3. The main food of a bat is
a) Fish
b) Insects
c) Fruit

Worksheet #5

4. How many species of bats are found in Latvia?
a) 16
b) 20
c) 300

5. When do bats usually have babies?
a) In July and August
b) In February
c) At the end of May and in June

6. How long does it take for a baby bat to learn to fly and start hunting independently?
a) One week
b) One month
c) Three months

7. What parasites are common in bats?
a) Ticks, fleas
b) Lice, thrips
c) Tapeworms

8. What is the branch of zoology called which studies bats?
a) Herpetology
b) Chiropterology
c) Ichthyology

9. Which tool do scientists use to catch bats?
a) Light screen
b) Slings
c) Bird trap

10. Which tool allows determining the species of a bat in the easiest way?
a) An ultrasound detector
b) A ruler
c) Scales

Answer table:

QUESTION	A	B	C	MY RESULT
1.	5	7	9	
2.	9	7	5	
3.	7	5	9	
4.	5	9	7	
5.	7	9	5	
6.	7	5	9	
7.	5	9	7	
8.	7	5	9	
9.	9	7	5	
10.	5	7	9	

TOTAL: ....

Answers:

50 points — You are a bat expert!

51–70 points — You know quite a lot about bats; however, you still have things to learn.

71–90 points — Your interest in bats is great! Keep learning!
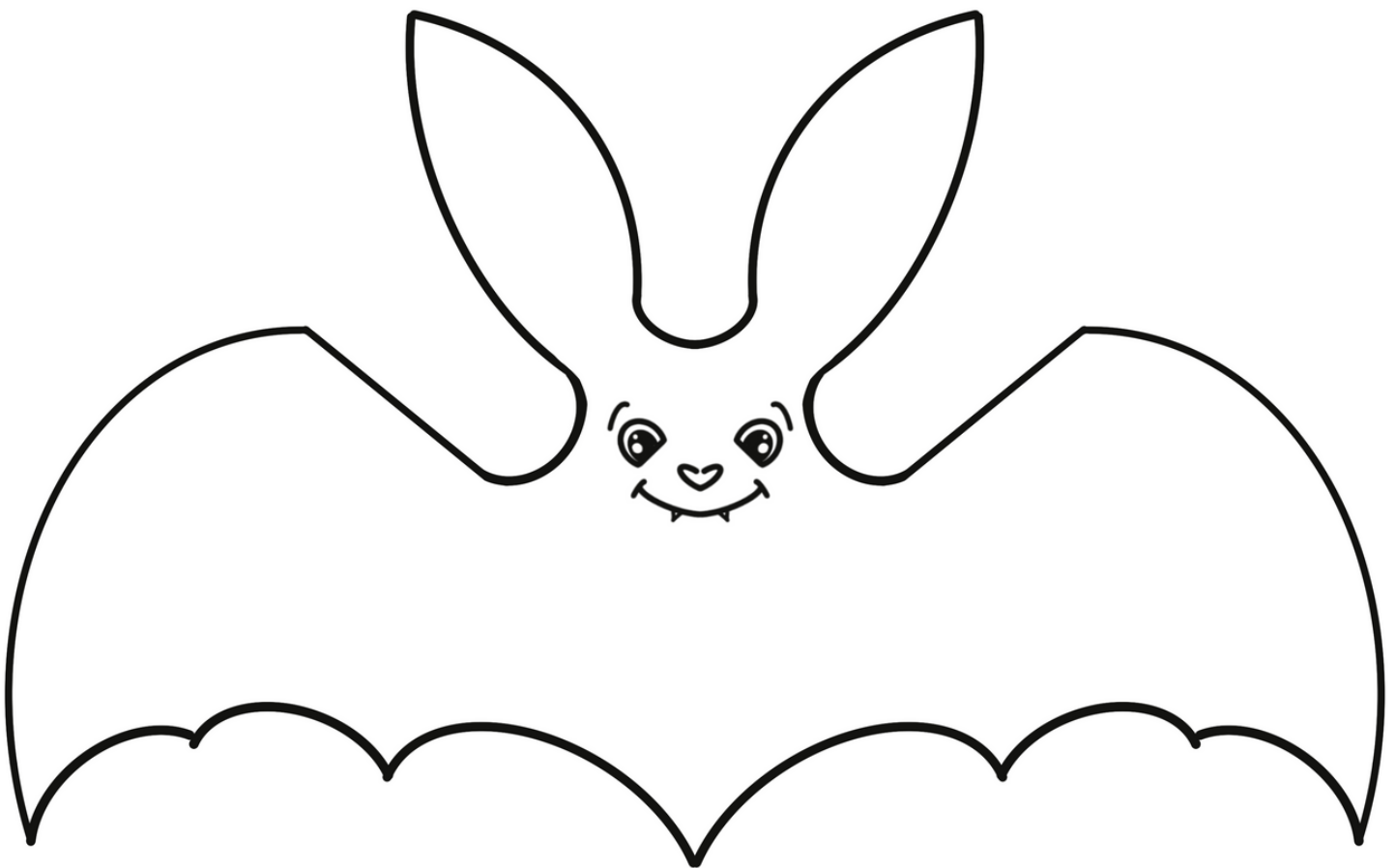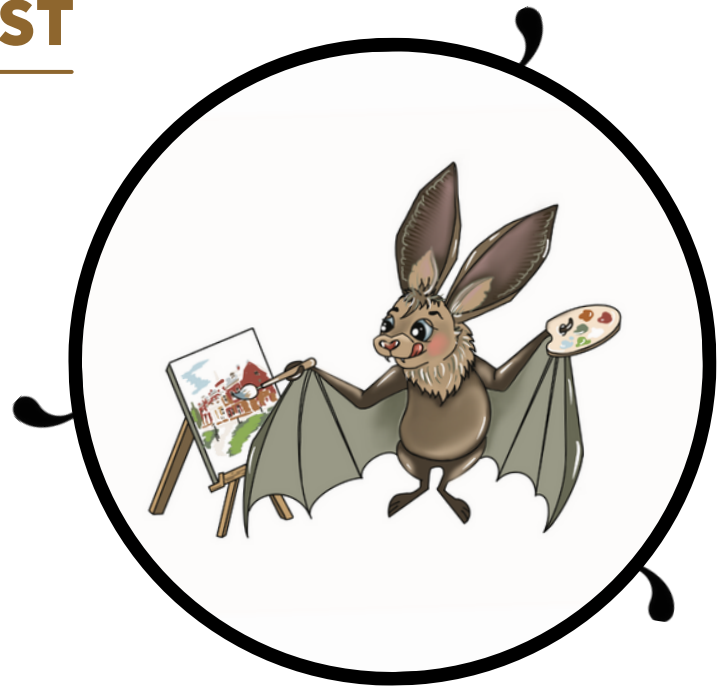
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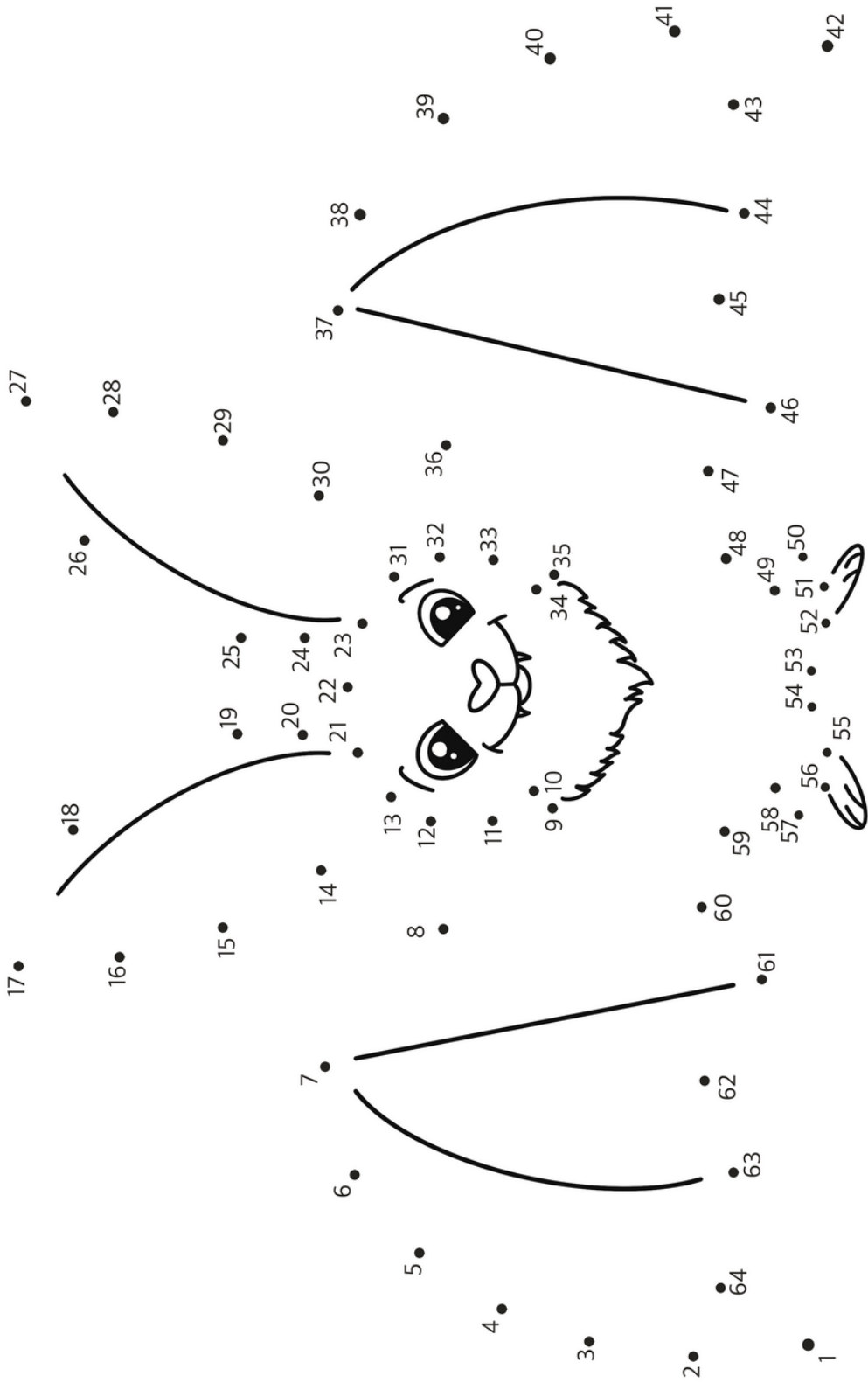# I WANT TO BE AN ARTIST

Task:

Draw a bat with your eyes closed by tracing the shape provided!

Task:

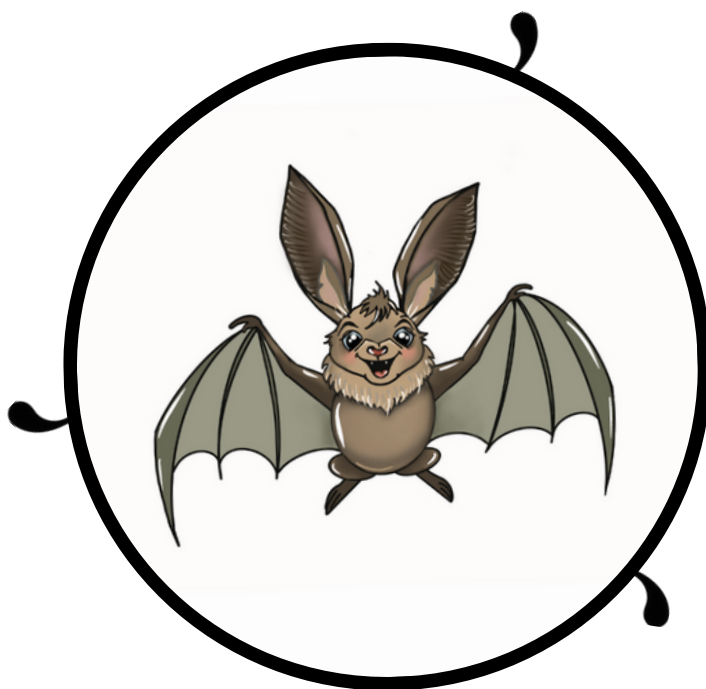Draw the shape of a bat by connecting the numbers in the increasing order!

Task:

Colour the bat in accordance with the numbers below!

1–white, 2–yellow, 3–orange, 4–black, 5–dark green, 6–grey, 7–light green, 8–light brown, 9–dark blue, 10–dark brown

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BAT SPECIES

Task:

Find 16 names of bat species in this word puzzle!

Word list:

BRANDT'S_BAT

BROWN_LONG-EARED_BAT

WHISKERED_BAT

PARTI-COLOURED_BAT

POND_BAT

WESTERN_BARBASTELLE

GREATER_MOUSE-EARED_BAT

LEISLER'S_BAT

NATTERER'S_BAT

NATHUSIUS'_PIPISTRELLE

SOPRANO_PIPISTRELLE

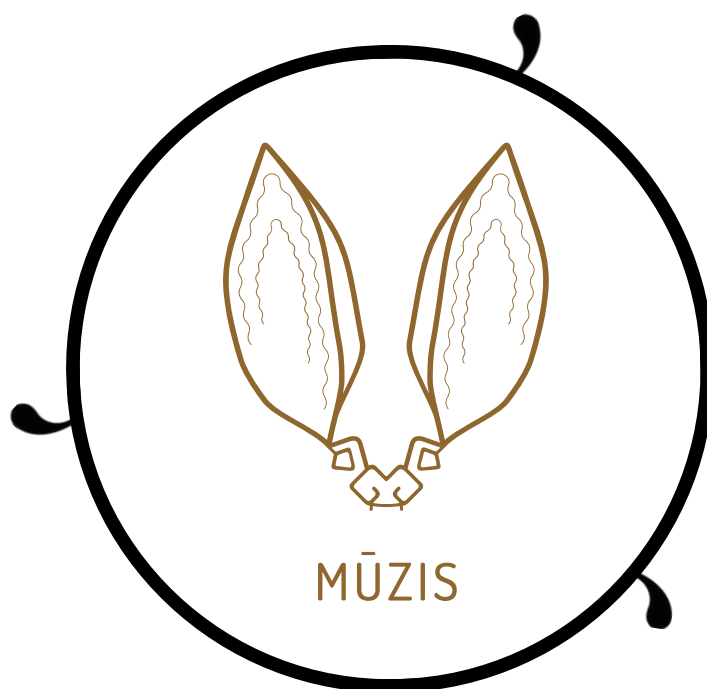SEROTINE

COMMON_PIPISTRELLE

NOCTULE

NORTHERN_BAT

DAUBENTON'S_BAT

Worksheet #7

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I B E A U E F F S A Q P D X I D J F C Z Z Q A H K I O T P O
B G A D X B E R L H D G H H O J I D V S O U Q L J X R L A R
D N O C T U L E G K I E P Z N A Q X B A K T T X R Y Z S P N
A X S V M Y X M F O J U C D K G Z Y S I P Q Z W T M P U V M
U F P G B U H E K N Z R D K B S F D D A E T N B K O C U J Y
B T V L E L L E R T S I P I P _ S U I S U H T A N A T F G X
E D W F S L U U X F Y Q R Q A P U G L Z D L R I J R E F R D
N X N O R T H E R N _ B A T E K R N P S T V V C O M N G Y P
T E Q S Z M O E X L T A B _ D E R A E G N O L _ N W O R B J
O E F O P V Q Y O Y I Z L I R U B B N Z U P Z F H T S O G Y
N Y G S A N T O P S N T A B _ S R E L S I E L A M V V L E N
S G W P S T N R O P M K U S Z A K T A B _ D E R E K S I H W
_ C O M M O N _ P I P I S T R E L L E K P U R Z I S L U U F
B W W J W S I D R Y P K A I S L T A B _ S R E R E T T A N J
A T R C P Z X M C N R X W Q P D A T T F E K L J M L C G K G
T Y C P V B R A N D T S _ B A T Z U I K E P O R K I T C R Q
S I T B H P O N D _ B A T Z Y A I K E P L R N U S A L S O E
P N F X V P Q Z R Z G Q Q B F I F U V U Z U L F H L E L J P
E G K Q Q S L E L L E R T S I P I P _ O N A R P O S X R L V
R I I D Q Z I N Y U P S T A B _ D E R U O L O C I T R A P X
V P G W B L T Z E C Y S F A K T Z M C F Q P M N W S P K C M
I H G N Q L S I E J X N P N Z I R G H V H Q G F S A R X C F
K Z A M H P R A W X E M P R V B J R T S H T I H H C J H O W
E N E L L E T S A B R A B _ N R E T S E W S J M M L B V A J
K Y V N B M P Y G R K C G N D A T G K X U F N N X M P A A G
H E K K X Z R N Z G S V C X P N J V X N M Z L J H H J J J G
S P L U A K K Y T G L N P O X O G A R Y C U F H G E E I W O
S E R O T I N E O Z Y S A K U P Z R U I S N L R T T P H Q W
U S M S B O W R L J U X N G N B C K A V V D L V A S M C I J
H E Y Z L G R E A T E R _ M O U S E E A R E D _ B A T I E R
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MYTH OR FACT?

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Task:

Mark which of these statements are true facts (+) and which are myths, beliefs, or simply false (-)! If you know the correct answers, add these to the false statements!

☐ All bats are bloodsuckers or vampires.

☐ When bats sleep in winter, their temperature goes down significantly, their heartrate, breathing, and metabolism slow down – this is called hibernation.

☐ Bats have 6–8 pups in one litter.

☐ If you scare a bat, it will get itself entangled in your hair.

☐ In winter, bats eat jam and potatoes stored in the cellar.

☐ Bats are the only mammals who can fly.

☐ If a bat is woken up at the wrong time, it attacks.

☐ If a bat is woken up at the wrong time, it can lose a lot of energy and die.

☐ Bats are nocturnal animals.

☐ Bulldog bats and bumblebee bats also exist in the world.

☐ Bats are really mice who were given wings by God as a blessing for good behaviour.

☐ One bat colony can eat several tons of insects in one night.

☐ In Poland, bats are a sign of luck.

☐ Dracula and Batman are the product of the mutation of vampire bat and human genes.

☐ Megabats usually prefer fruit, whereas microbats usually prefer insects.

☐ Only females with baby bats stay in maternity colonies.

☐ Bats are a blessing of a home.

☐ Bats are polygamous animals – they mate with several partners.

☐ Fast-flying bats have relatively small ears, while slow-flying bats have larger ears.

☐ An ultrasound detector is a device which can be used to hear bat calls.

☐ When a bat's wings get tired, the bat continues walking on its hind legs.

☐ When female bats return from feeding, they can unmistakably find their baby in the maternity colony.

☐ All bat species found in Latvia stay here all year.

☐ When flying in parks, bats often happen to strike a tree, which is the most common cause of their death.

☐ The presence of bats in a building can usually be established by the presence of their droppings.

MŪZIS

BAT MATHEMATICS

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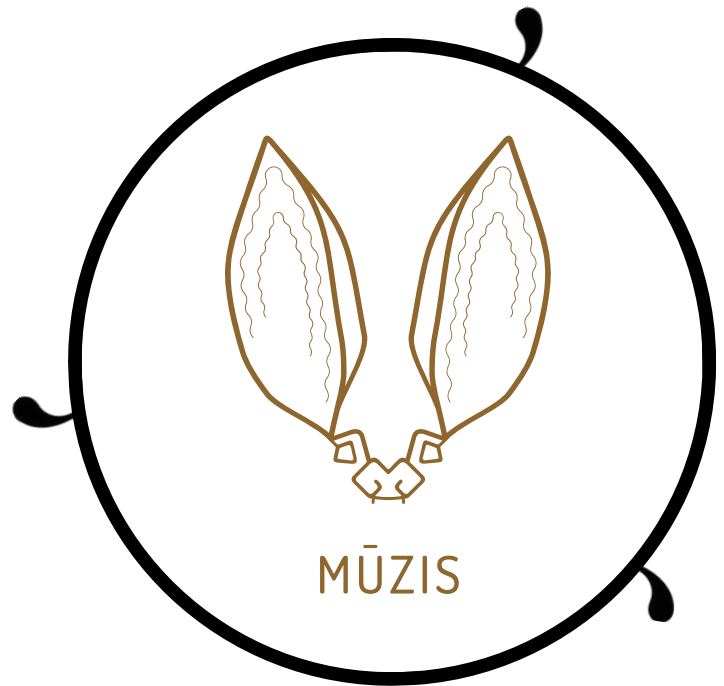
Task:

Solve maths problems together with adults!

1. Three bats – the common pipistrelle, the soprano pipistrelle and the noctule – went to have dinner together. The common pipistrelle, being small, ate 200 insects, the soprano pipistrelle had tummy aches that evening and only ate 100 insects, but the noctule was very hungry, which is why he flew faster and higher, and ate the same number of insects as his both smaller friends together. How many insects in total did not return home that night?

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2. Two bats, each weighing 20 grams and flying at the speed of 40 km/h, each fly 200 km in one night. How many km in total do four equally fast bats fly in one night if each of them weights 15 grams, two are fawn-coloured, one is light grown, and one is almost black?

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3. The parti-coloured bat has ears 12–17 mm in length, but the brown long-eared bat has 31–43 mm ears. Is it possible that a brown long-eared bat's ears are three times longer than the ears of a parti-coloured bat?

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4. Calculate the number of bats which have settled in an old wooden building! 23 bats are spending winter in the cellar, 157 bats settled in the attic in summer, and 20 bats are resting behind the window shutters.

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5. A bat was flying in the park and flew past a birch tree 3 times, flew around a spruce 5 times, and came back to a larch 2 times. How many times did the bat visit that night? What other tree species do you know and can identify in the manor park? (there may be more than one correct answer).

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6. One day a pond bat decided to try numerology. First, he wanted to count the number of letters in his name. The first word was easy – p-o-n-d – that's 4 letters. The second word was even easier. He was able to count the number of letters in it on one hand. When he added together the letters in both words, he obtained a number which is equal to a time period humans use in the calendar for convenience. Can you also count the letters and tell if the bat was good at maths?

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7. In the maternity colonyof Nathusius' pipistrelles in the attic of the manor where 300 females had settled, every third female had 2 babies in two weeks, but the other 200 females had one baby each. How many baby bats enjoyed a happy childhood in the attic of the manor until a hungry cat sneaked in?

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8. The northern bat liked flying around the park's lanterns every evening because more insects gathered there. By the first, second, and third lantern, he ate 60 insects in total. Moreover, the number of insects eaten by the third lantern was the same as the number of insects eaten by the first and second lantern together. By the fourth and fifth lantern, the bat lost count, but he remembered that starting from the fourth lantern every fifth insect he had eaten was a night-moth, and he had forty-eight moth legs stuck on his lips (the legs aren't very tasty, which is why they hadn't been eaten). How many insects spent the last days of their lives by the park's lanterns?

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9. One autumn a western barbastelle accidentally wandered into Latvia from a neighbouring country because he flew using a natural corridor – the border. Since the barbastelle was on his own, his immediate goal was to find an appropriate place to spend winter. The nearest old manor with a cellar suitable for hibernation was only 10 km away, but when the barbastelle arrived there, he understood that the place wouldn't do because the cellar had central heating, making it too warm. He went to another manor 20 km further, but that manor was half-ruined and didn't even have a cellar. It took him another half hour to get to the next manor, flying at the speed of 50 km/h. The western barbastelle even settled in the cellar there by the ceiling, but as soon as he started falling asleep, he was disturbed by bright light and a group of tourists because, as it turned out, the manor was a very popular tourist attraction. With the tourists screaming, the bat dashed through the doorway and flew further to a village 15 km away, which not only had a manor with the main building, but other household buildings as well. The main building looked like a castle, too posh to be abandoned. The barbastelle flew through the park, travelling 2 more kilometres, saw a few ruins, one wooden house, and one church; he was glad to find that it would be a good place to spend the summer. Finally, his not so excellent nose noticed the smell of horses, and he found an old horse stable. Although stables usually don't have cellars, this stable was special – horses lived on the ground floor, but the cellar had a bat fitness centre. And by a stroke of luck, he met the world's nicest, prettiest girl bat there. What happened next is not my story to tell. You only have to count how many kilometres the trespasser bat had overcome at the territory of Latvia until he found a safe home.

10. The majority of bats prefer to feed over different bodies of water. Lūznava bats are the same – they gladly feed over the ponds in the manor's park. Have a walk in the park and count the ponds! Count how many times a bat has to travel from the manor's attic to the feeding place and back if it decides to have a meal by every pond in the park in one night!

MŪZIS

HEAR WITH YOUR HEART!
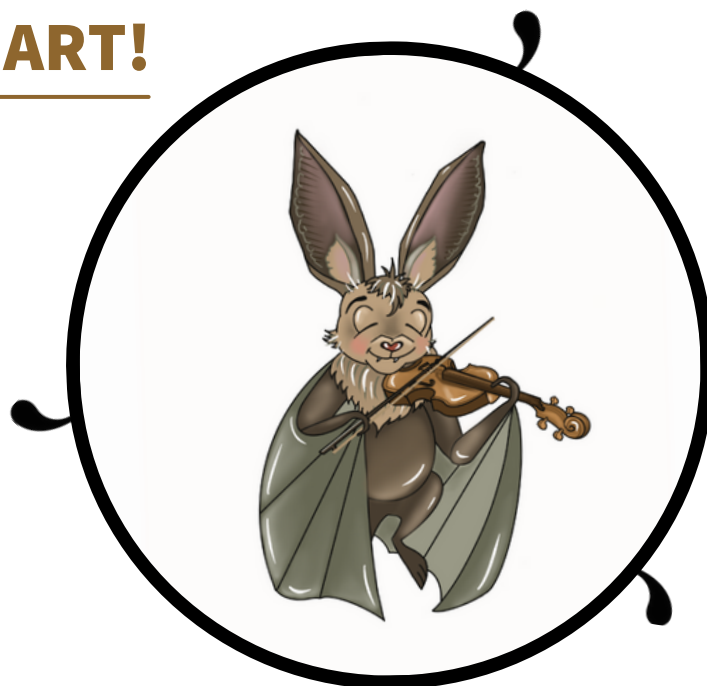
Task:

Each species of bats has a different "voice" or the frequency of the sound they make. Therefore, the easiest way to tell which species a bat belongs to is using an ultrasound detector. Go on a walk around the territory of the manor and use an ultrasound detector to try and tell which bat species are found here!

If you are working independently, use the research results provided in the table below!

Determining Latvian bat species using a heterodyne detector *

*(Author: G. Pētersons)

FREQUENCY-MODULATED (FM) CALLS

These calls sound like a series of relatively quiet, fast, dry clicks. When rotating the detector's frequency scale, it is difficult to determine the best audible frequency, e.g., a bat can be heard equally well if the detector is set to 30, 40, or 50 kHz.

Myotis (mouse-eared bats, we have 5 species in Latvia) or Plecotus (we have one species – P. auritus – brown long-eared bat) families. These species usually cannot be distinguished with confidence using a heterodyne detector.

CONSTANT FREQUENCY (CF) OR QUASI CONSTANT FREQUENCY (QCF) CALLS

These types of calls have a clear so-called best audible frequency, which corresponds to the frequency where the majority of the call's energy is concentrated. When the detector is set to the corresponding frequency, you can hear rich 'smacks'. If the frequency is not set correctly, QCF calls can be mistaken for FM calls of mouse-eared bats. For example, the sound of a northern bat will be rich if the detector is set to 30 kHz, but it will sound dry at 40 or 50 kHz.

Below you will find best audible frequencies for the most common species in kHz:

Noctule	*Nyctalus noctula*	17–21
Northern bat	*Eptesicus nilssonii*	27–32
Nathusius' pipistrelle	*Pipistrellus nathusii*	36–43
Soprano pipistrelle	*Pipistrellus pygmaeus*	49–55

There are rarer species whose best audible frequencies overlap with the frequencies of the species above:

Leisler's bat	*Nyctalus leisleri*	21–26
Parti-coloured bat	*Vespertilio murinus*	22–27
Serotine	*Eptesicus serotinus*	22–26

The best audible frequency ranges specified for both groups apply to situations where the bats are flying in a relatively open space – far from trees, buildings, etc. In more confined spaces, they usually make higher frequency calls, even switching to pure FM calls.

Unfortunately, in many cases it is impossible to determine the species with precision using a handheld ultrasound detector.

Task:

Depending on the signal frequency you heard, note, which species you recognised!

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MŪZIS

MATHS FOR YOUNG EXPLORERS
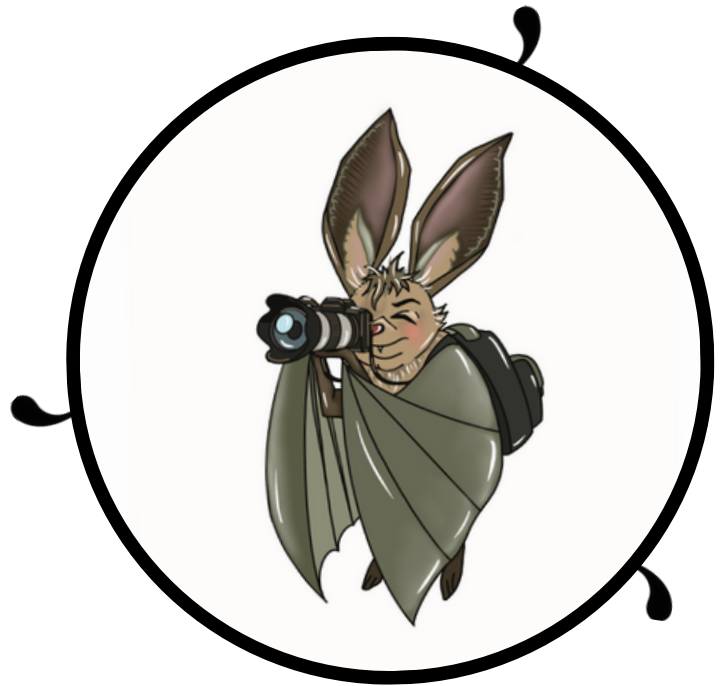
Task:

Solve maths problems!

1. One bat has two ears. How many ears do 16 bats have?

....

2. 10 bats were flying around the park. 7 bats joined them at first and 5 more joined later. How many bats were flying around the park when the first 10 had already gone?

....

3. Three bats were hanging in the cellar under the ceiling. The first bat fell asleep at 16:00 (4PM), the second at 19:00 (7PM), the third at 21:00 (9PM). For how many hours no one came into the cellar and didn't disturb the bats?

....

4. Two bats decided to see who can fly faster. Both flew out from the window in the roof of the manor at the same time. One flew from the manor to the nearest pond in 30 seconds, the other one reached the pond after 40 seconds. However, before he got to the pond, he flew around the manor for 10 seconds. Which of the bats was faster?

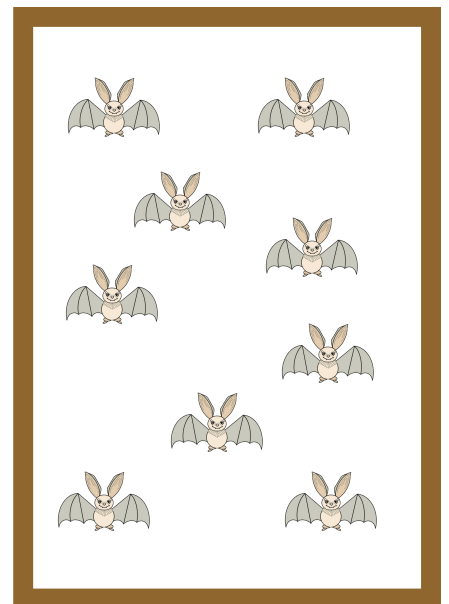...

Task:

Count the bats! Which "room" has a corresponding number of bats?

10 (TEN)
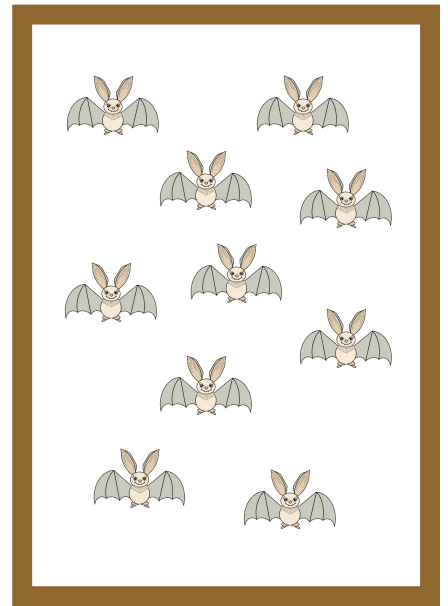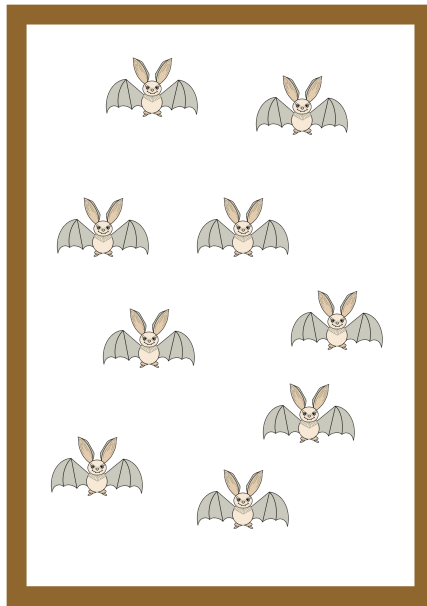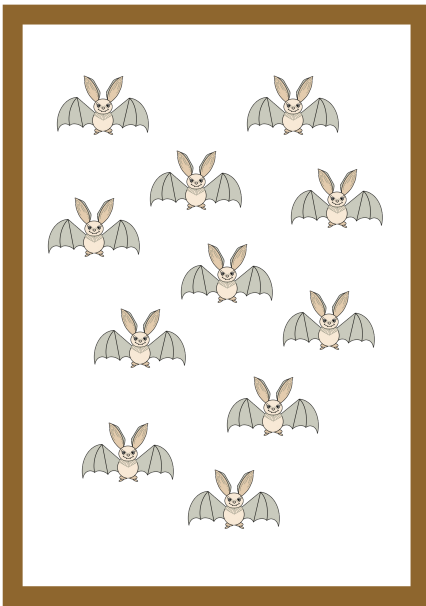
9 (NINE)
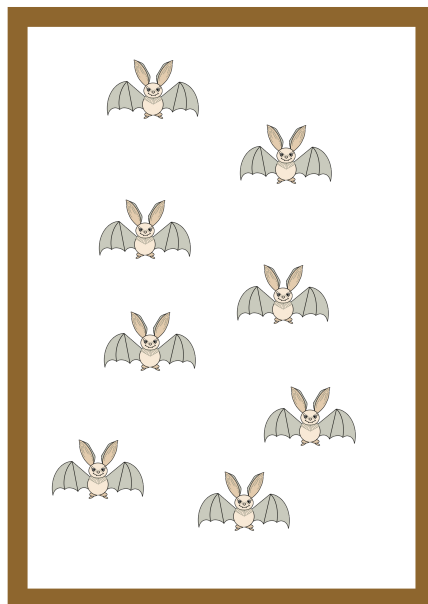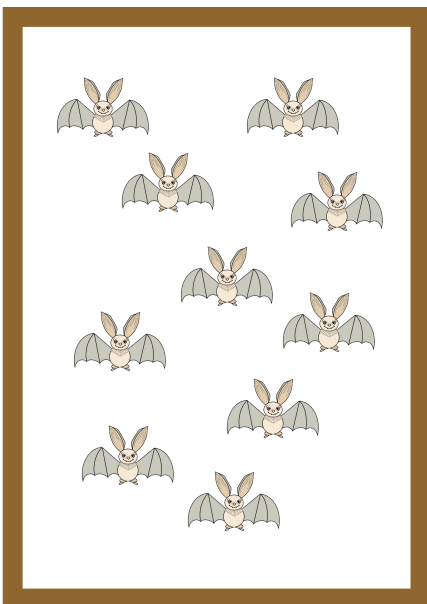
Task:

Count the bats and write down the missing numbers!

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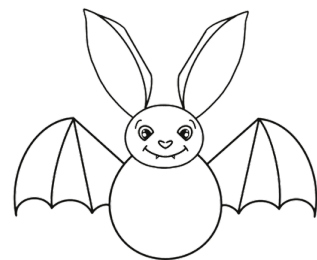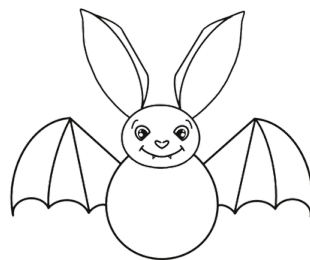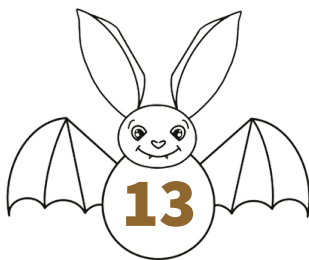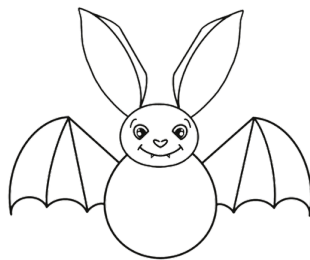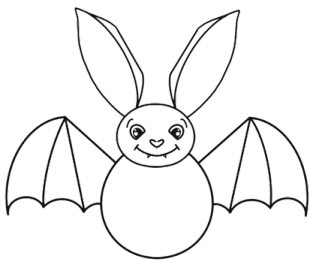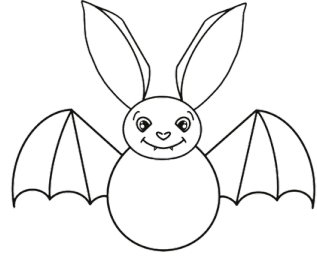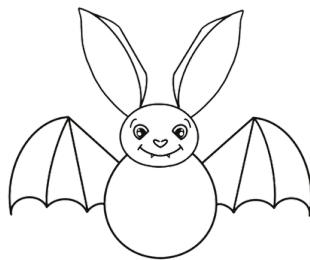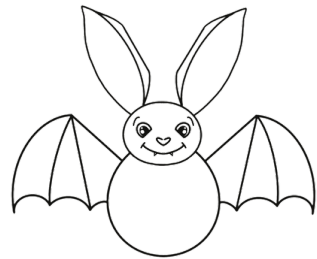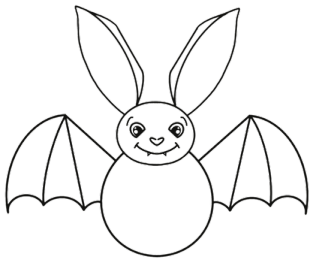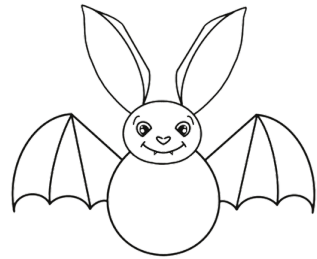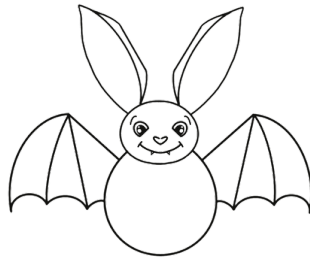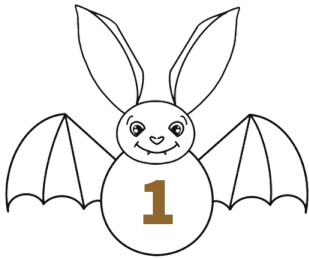
INDEPENDENT WORK FOR AN OUTDOOR CLASS*

*This worksheet will show how comprehensive your knowledge about nature is. If you find any questions difficult, you can look for answers on the internet. You are also going to receive some tricky tasks which you need to complete by yourself.

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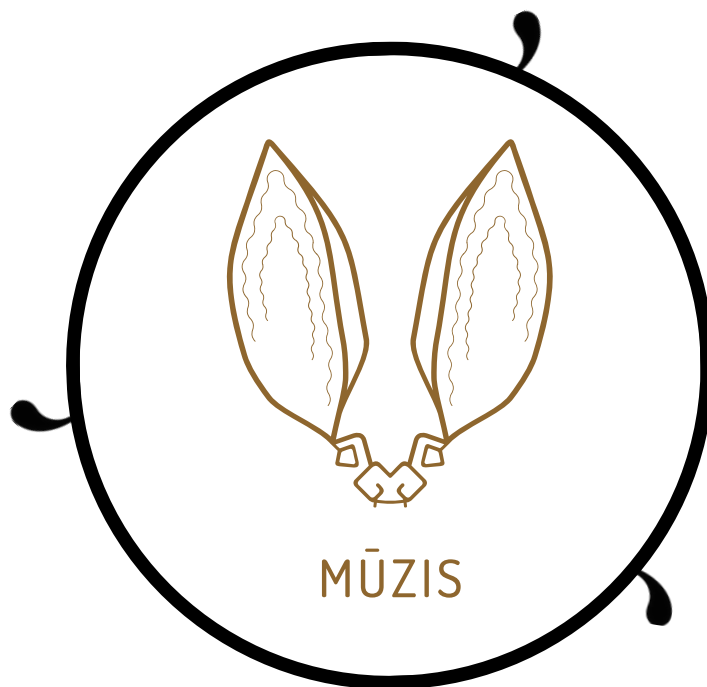
Task:

Draw (no cheating!) an outline of a bat without lifting your pencil from the paper!

Worksheet #12

1. List 9 animals (names of specific species) which belong to different classes (mammals, birds, reptiles, amphibians, insects, arachnids, molluscs, crustaceans, fish)!

....

....

2. Name 10 tree species which you were able to find in the Lūznava Manor park! If you can't think of 10 species of trees, you can replace some with species of bushes.

....

....

3. Check your knowledge about plants! Can you name 10 flowering plants?
(These should also include one tree, one bush, one water-plant, and one indoor plant.)

....

....

4. Name 3 things that worsen the condition of nature!

....

....

5. Write down in which countries you think bats prefer to spend winter. You have to name 3 countries. You can use the internet to find out which countries these are.

....

6. Name 3 features that distinguish bats from any other mammal!

....

....

7. Write down an idea how you could help bats.

....

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Worksheet #4

> List 4 animals (mostly insects) that bats like to eat. Each word has to start with a different letter and no two words can have the same number of letters.

Example of an answer: mosquito, fly, dragonfly, spider

> Colour those bats which have rhyming syllables on their wings!
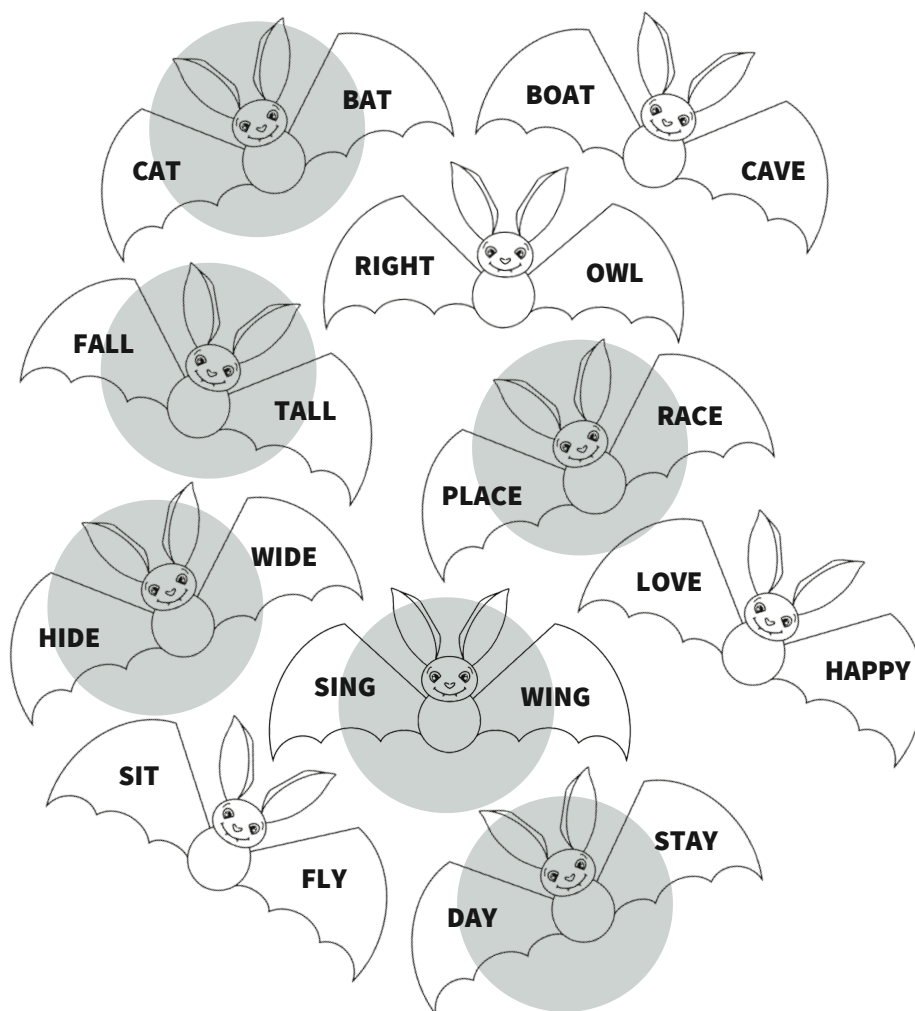
Worksheet #5

Choose which answer is correct in your opinion – a, b, or c! Count the points you earned using the answer table provided and check which level you have achieved! Correct answers – with a score of 5.

QUESTION	A	B	C
1.	5	7	9
2.	9	7	5
3.	7	5	9
4.	5	9	7
5.	7	9	5
6.	7	5	9
7.	5	9	7
8.	7	5	9
9.	9	7	5
10.	5	7	9

Worksheet #9

Solve maths problems together with adults!

1. 600

2. 800

3. Yes, this is possible if the length of the parti-coloured bat's ears is 12, 13 or 14 mm.

4. 200

5. The number of trees depends on how many times the bat visited one and the same tree.

6. The name of the bat has 7 letters. There are 7 days in a week.

7. 400

8. 100 (Calculation: start with 60 (30+30), add 40 (8 night-moths (6 legs x 8 = 48 legs) + other insects, because only every 5th was an insect).

9. 72

10. 7 ponds x 2= 14 times

Worksheet #7

Find 16 names of bat species in this word puzzle!

```
I B E A U E F F S A Q P D X I D J F C Z Z Q A H K I O T P O
B G A D X B E R L H D G H H O J I D V S O U Q L J X R L A R
D N O C T U L E G K I E P Z N A Q X B A K T T X R Y Z S P N
A X S V M Y X M F O J U C D K G Z Y S I P Q Z W T M P U V M
U F P G B U H E K N Z R D K B S F D D A E T N B K O C U J Y
B T V L E L L E R T S I P I P _ S U I S U H T A N A T F G X
E D W F S L U U X F Y Q R Q A P U G L Z D L R I J R E F R D
N X N O R T H E R N _ B A T E K R N P S T V V C O M N G Y P
T E Q S Z M O E X L T A B _ D E R A E G N O L _ N W O R B J
O E F O P V Q Y O Y I Z L I R U B B N Z U P Z F H T S O G Y
N Y G S A N T O P S N T A B _ S R E L S I E L A M V V L E N
S G W P S T N R O P M K U S Z A K T A B _ D E R E K S I H W
_ C O M M O N _ P I P I S T R E L L E K P U R Z I S L U U F
B W W J W S I D R Y P K A I S L T A B _ S R E R E T T A N J
A T R C P Z X M C N R X W Q P D A T T F E K L J M L C G K G
T Y C P V B R A N D T S _ B A T Z U I K E P O R K I T C R Q
S I T B H P O N D _ B A T Z Y A I K E P L R N U S A L S O E
P N F X V P Q Z R Z G Q Q B F I F U V U Z U L F H L E L J P
E G K Q Q S L E L L E R T S I P I P _ O N A R P O S X R L V
R I I D Q Z I N Y U P S T A B _ D E R U O L O C I T R A P X
V P G W B L T Z E C Y S F A K T Z M C F Q P M N W S P K C M
I H G N Q L S I E J X N P N Z I R G H V H Q G F S A R X C F
K Z A M H P R A W X E M P R V B J R T S H T I H H C J H O W
E N E L L E T S A B R A B _ N R E T S E W S J M M L B V A J
K Y V N B M P Y G R K C G N D A T G K X U F N N X M P A A G
H E K K X Z R N Z G S V C X P N J V X N M Z L J H H J J J G
S P L U A K K Y T G L N P O X O G A R Y C U F H G E E I W O
S E R O T I N E O Z Y S A K U P Z R U I S N L R T T P H Q W
U S M S B O W R L J U X N G N B C K A V V D L V A S M C I J
H E Y Z L G R E A T E R _ M O U S E E A R E D _ B A T I E R
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Worksheet #8

Mark which of these statements are true facts (+) and which are myths, beliefs, or simply false (-)! If you know the correct answers, add these to the false statements!

— All bats are bloodsuckers or vampires.
Only a few such species exist, and they are not found in Latvia.

+ When bats sleep in winter, their temperature goes down significantly, their heartrate, breathing, and metabolism slow down – this is called hibernation.

— Bats have 6–8 pups in one litter.
They usually have 1 or 2 pups.

— If you scare a bat, it will get itself entangled in your hair.
No, bats tend to avoid obstacles.

— In winter, bats eat jam and potatoes stored in the cellar.

+ Bats are the only mammals who can fly.

— If a bat is woken up at the wrong time, it attacks.
A bat can bite, but it doesn't do that when sleepy.

+ If a bat is woken up at the wrong time, it can lose a lot of energy and die.

+ Bats are nocturnal animals.

+ Bulldog bats and bumblebee bats also exist in the world.

— Bats are really mice who were given wings by God as a blessing for good behaviour.

+ One bat colony can eat several tons of insects in one night.

+ In Poland, bats are a sign of luck.

— Dracula and Batman are the product of the mutation of vampire bat and human genes.

+ Megabats usually prefer fruit, whereas microbats usually prefer insects.

+ Only females with baby bats stay in maternity colonies.

— Bats are a blessing of a home.
But it's totally fine if you believe so.

+ Bats are polygamous animals – they mate with several partners.

+ Fast-flying bats have relatively small ears, while slow-flying bats have larger ears.

+ An ultrasound detector is a device which can be used to hear bat calls.

— When a bat's wings get tired, the bat continues walking on its hind legs.

+ When female bats return from feeding, they can unmistakably find their baby in the maternity colony.

— All bat species found in Latvia stay here all year.
Only 8 species spend winter here.

— When flying in parks, bats often happen to strike a tree, which is the most common cause of their death.
No, bats tend to avoid obstacles.

+ The presence of bats in a building can usually be established by the presence of their droppings.

Worshet #11

Solve maths problems!

1. 32

2. 12

3. At least 5 hours.

4. Both had the same speed.

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