O‘zbekiston Respublikasi Ta’limni rivojlantirish respublika ilmiy-metodik markazi

Matematika fanidan matnli masalalarni yechishda MRT yondashuvidan foydalanish

Davlatova Zarina,
Vobkent tuman 31-maktab matematika fani o‘qituvchisi.

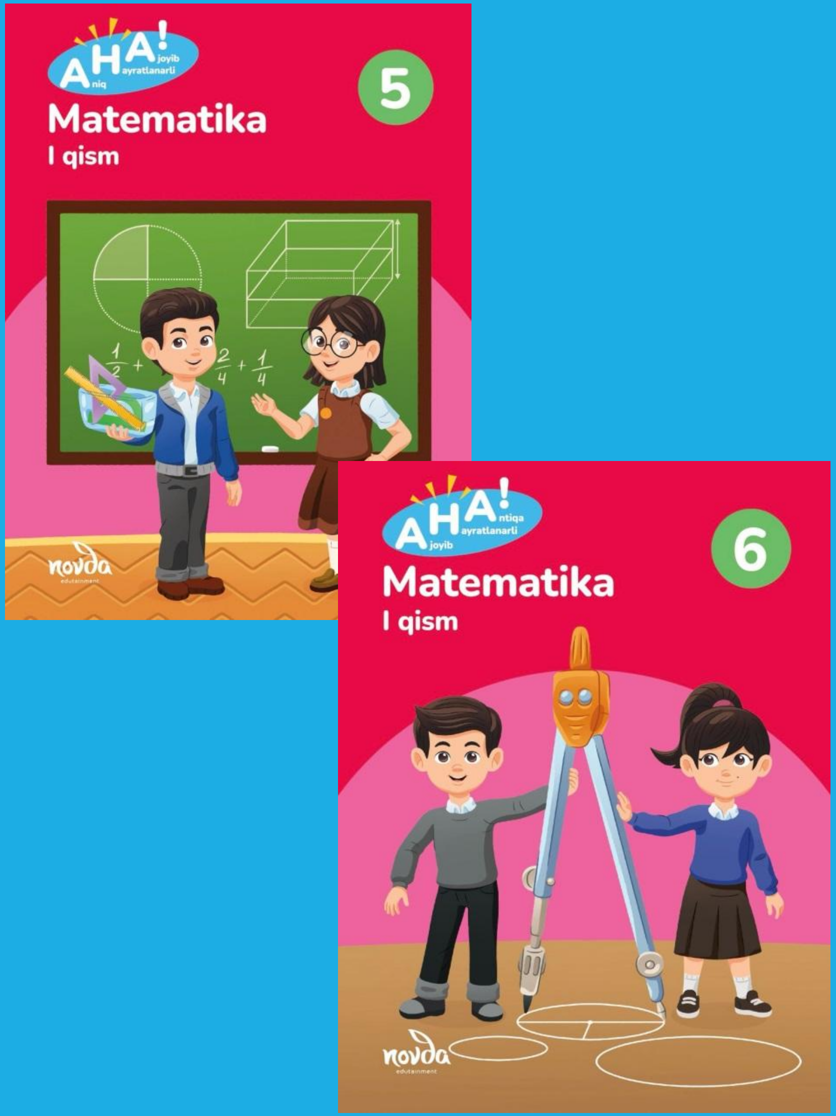
Matematika hamma aniq fanlarga asos. Bu fanni yaxshi bilgan bola aqlli, keng tafakkurli bo‘lib o‘sadi, istalgan sohada muvaffaqiyatli ishlab ketadi.

Sh.M.Mirziyoyev

Matematika fanini o‘qitishda qanday innovatsion yondashuvlar o‘quvchilarning bilim va ko‘nikmalarini samarali rivojlantirishi mumkin?

Matematik savodxonlik, bu…

- Shaxsning turli hayotiy vaziyatlar va masalalar ustida matematik mulohaza yuritish;
- Berilgan muammoni matematika yordamida ifodalay olish;
- Muammoni yechishda matematikani qo‘llay olish;
- Olingan natijalardan muammoning yechimini talqin qilish va baholashda foydalana olish qobiliyatidir



“AHA! Matematika” O‘zbekiston sharoitiga moslab mahalliylashtirilgan darslikdir.

U “Moddiy-Rasmli-Timsolli” yondashuviga asoslangan bo‘lib, AKT yordamida matematik tushunchalarni yaxshiroq o‘rganishga yordam beradi.

MAKTABGACHA VA MAKTAB TA'LIMI VAZIRLIGI

Matematika bu-

A aniq

H hayratlanarli

A ajoyib

Darslikning o‘ziga xos xususiyatlari

- **Evristik yondashuv**

Bunda modellar, diagrammalar va jadvallarni qurish, qonuniyatlarni qidirish, turli yechish usullarini topish va o‘z fikrini tushuntirib berishga asoslanadi.

- **MRT (CPA) yondashuvi**

O‘quvchilarning muammoli vaziyatni hal qilish jarayonida qo‘llaniladigan yondashuv bo‘lib, unda o‘quvchilar fikrlashning uchta: Moddiy (concrete), Rasmli (picturial) va Timsolli (abstrakt) darajasida faoliyat yuritishadi.

- **Spiralsimon o‘rganish tamoyili**

Yil davomida o‘rganilgan asosiy mavzular butun kurs davomida chuqurroq o‘rganish masadida takrorlanadi va o‘rganilayotgan matematik tushunchalar o‘rtasida yangi aloqalar o‘rnatiladi.

Moddiy

Rasmli

Timsolli

MRT yondashuvning kelib chiqishi

Jerom Bruner (1915 – 2016)

Moddiy-Rasmli-Timsolli yondashuv

1960-yillarda amerikalik psixolog olim, pedagog Jerom Bruner tomonidan ishlab chiqilgan.

Brunerning ta’kidlashicha, bolalarga matematikadagi mavhum tushunchalarni tushunishi uchun maxsus manupulativlar (ko‘rgazma qurollar, jihozlar) kerak.

MRT (Moddiy – Rasmli – Timsolli) yondashuvi

bolaning mavhum mavzular haqidagi tushunchasini shakllantirish uchun jismoniy va ko‘rgazmali vositalardan foydalanadigan o‘rganish tizimi.

MRT (CPA): Moddiy – Rasmli – Timsolli

MRT

MODDIY (CONCRETE)
matematik misol-masalalarni yechish uchun
jismoniy obyektlardan foydalanish

RASMLI **(PICTORIAL)**
matematik misol-masalalarni
yechishda rasm va chizmalardan
foydalanish

TIMSOLLI (ABSTRACT)
matematik misol-masalalarni
yechishda raqamlar va
belgilardan foydalanish.

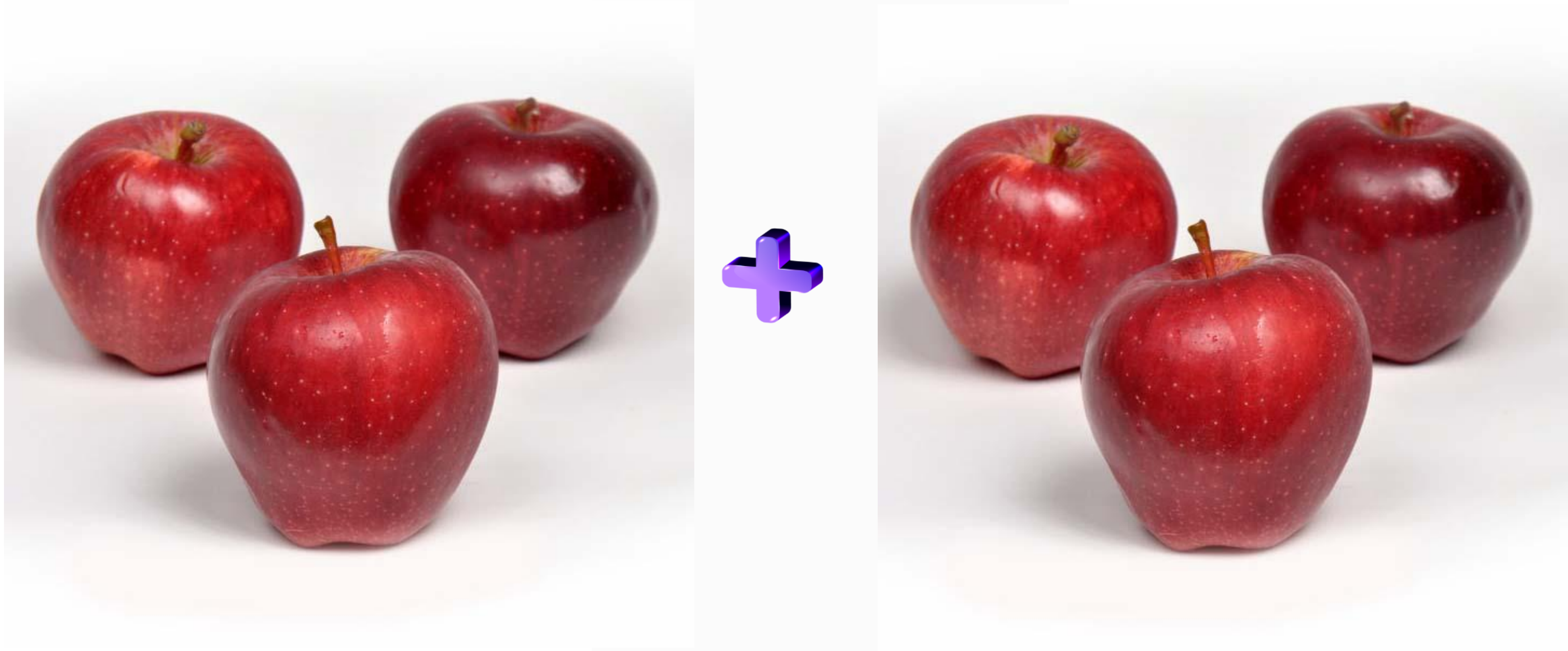
$2 + 1 = 3$

MRT ning asosiy maqsadi

- o‘quvchilarga mavhum tushunchalar bilan ishlashda o‘zida ishonchni va matematik mahoratni hosil qilishga yordam berishdir.

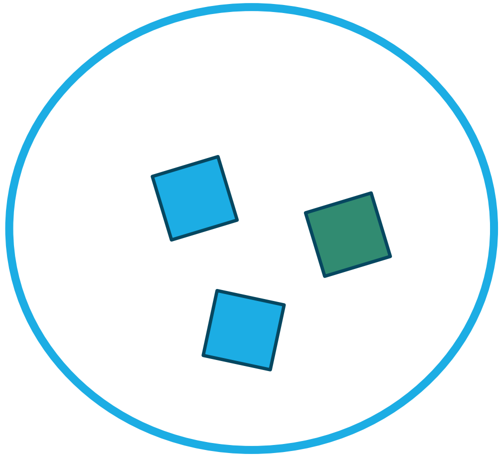
“Moddiy” bosqichi

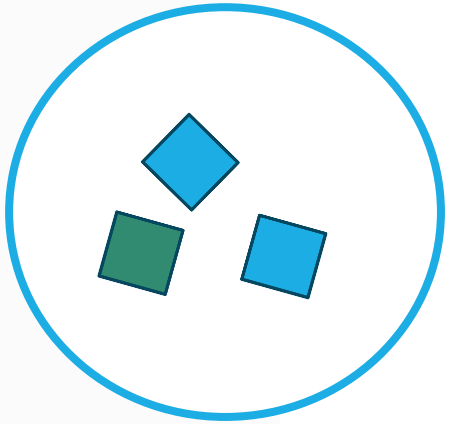
Jismoniy obyektlardan foydalanish orqali yangi tushunchalar kiritiladi. Misol uchun, o‘qituvchilar qo‘shishni o‘rgatish uchun haqiqiy olma yoki ularning jismoniy tasvirlaridan foydalanishlari mumkin.



“Rasmli” bosqichi

Ushbu bosqich tushunchalarni ifodalash uchun **chizmalar**, **diagrammalar** va **vizual tasvirlardan** foydalanishni oʻz ichiga oladi.



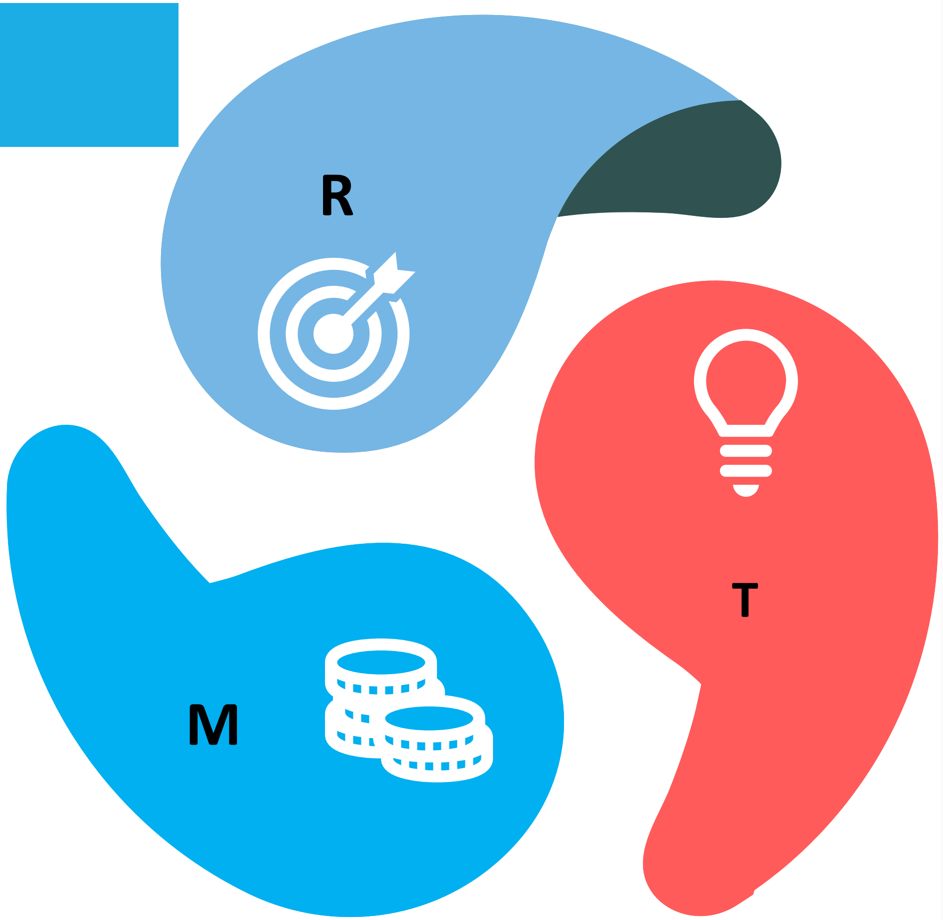


“Timsolli” bosqichi

O‘quvchilar moddiy vositalar va vizual tasvirlardan foydalanish orqali matematik kontseptsiya haqida tushunchani hosil qilgach, ular timsoliy bosqichga o‘tishlari mumkin. Bu yerda o‘quvchilar **belgilar**, **raqamlar** va **algebraik ifodalardan** foydalanadi.

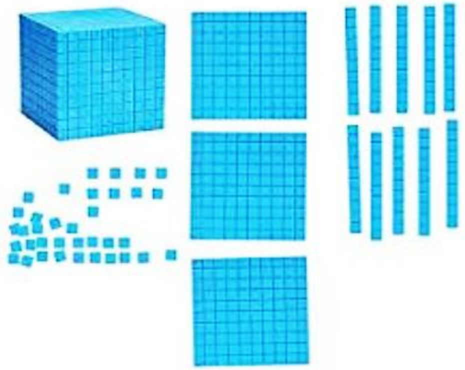
$$6:2=3$$

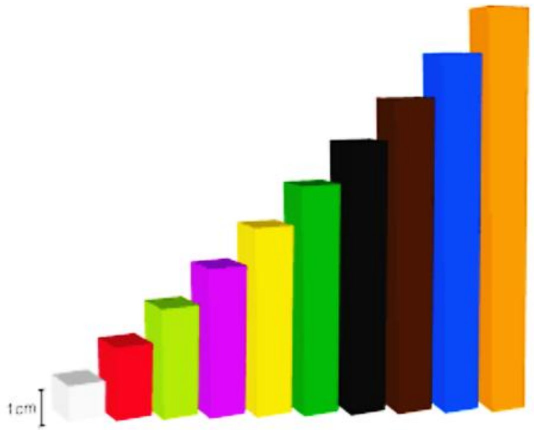
MRT xususiyatlari



1. MRT yondashuvini qo‘llashda iyerarxiya (ma’lum ketma-ketlik) yo‘q. Ya’ni, yondashuv chiziqli emas;
2. Bir darsda barcha bosqichlarni qo‘llash shart emas;
3. Yondashuv ham yoshi kichik, ham katta yoshdagi o‘quvchilar uchun qo‘llanilishi mumkin.

Darslikdagi topshiriqlarda MRT yondashuvini qo‘llash



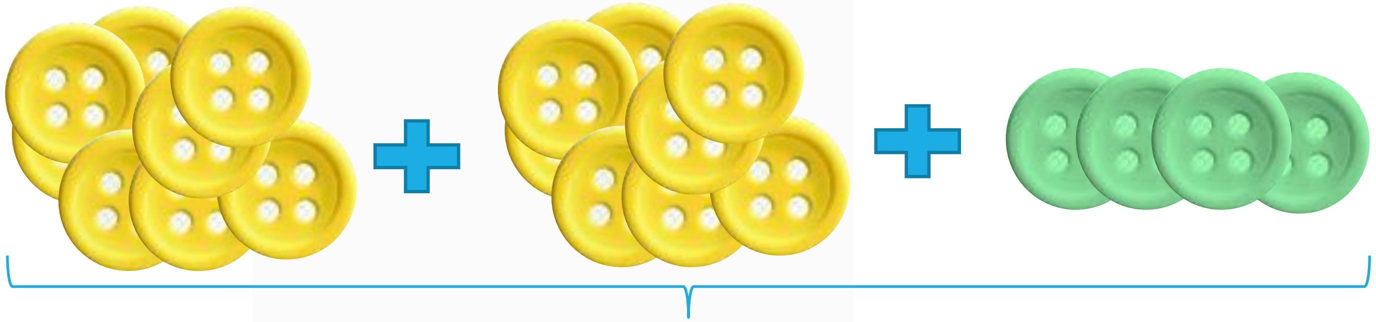


Guruhlar bilan ishlash

6-sinf Tenglamalarni yechish

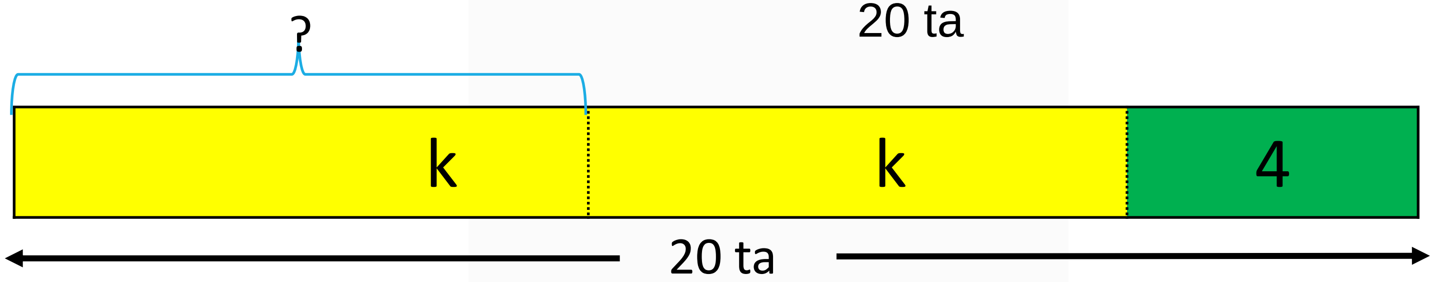
Dastalab qutida k ta sariq tugma bor edi. Tanzila qutiga yana shuncha miqdorda sariq va 4 ta yashil tugma soldi. Shundan so‘ng qutida 20 ta tugma bo‘ldi. Dastlab qutida nechta tugma bo‘lgan?

MODDIY



20 ta

RASMLI



TIMSOLLI

$4+2k=20$

$2k=20-4=16$

$k=16:2=8$

Javob.Dastlab qutida 8 ta sariq tugma bo‘lgan

6-sinf Tenglamalarni yechish

Qutida 7 ta tanga bor. Ravshan unga yana j ta tanga qo‘shdi va tangalarning umumiy soni 18 ta bo‘ldi. Ravshan nechta tanga qo‘shgan?

MODDIY

+ **J** =

18

RASMLI

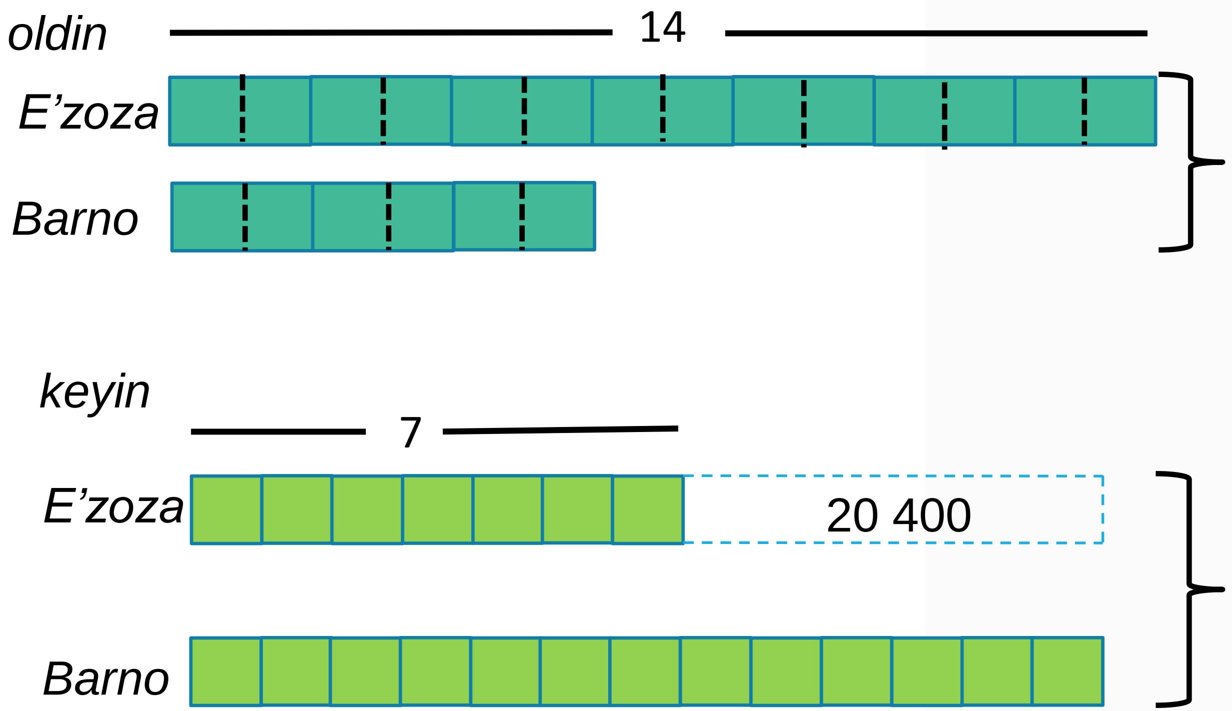
TIMSOLLI

7+j=18
qo‘shgan
j=18-7
j=11

Javob: Ravshan 11 ta tanga

6-sinf O‘zgaruvchan nisbatlar

E’zoza va Barnodagi pullarning nisbati 7:3 edi. E’zoza pulidan Barnoga bergach, E’zozadagi pulning Barnodagi pulga nisbati 7:13 bo‘lib qoldi. Shundan so‘ng Barnodagi pul E’zozanikidan 20 400 so‘mga ko‘p bo‘ldi. E’zoza Barnoga qancha pul bergan?



7+3=10 *bo‘lak*

10*2=20 *bo‘lak*

7+13=20 ta

13 bo‘lak-7 bo‘lak=6 bo‘lak
6 bo‘lak=20400
1 bo‘lak =20400:6
1 bo‘lak=3400

Demak, E’zoza pulining yarmini ya’ni 7 bo‘lagini bergan
*7 bo‘lak=7*3400=23800*

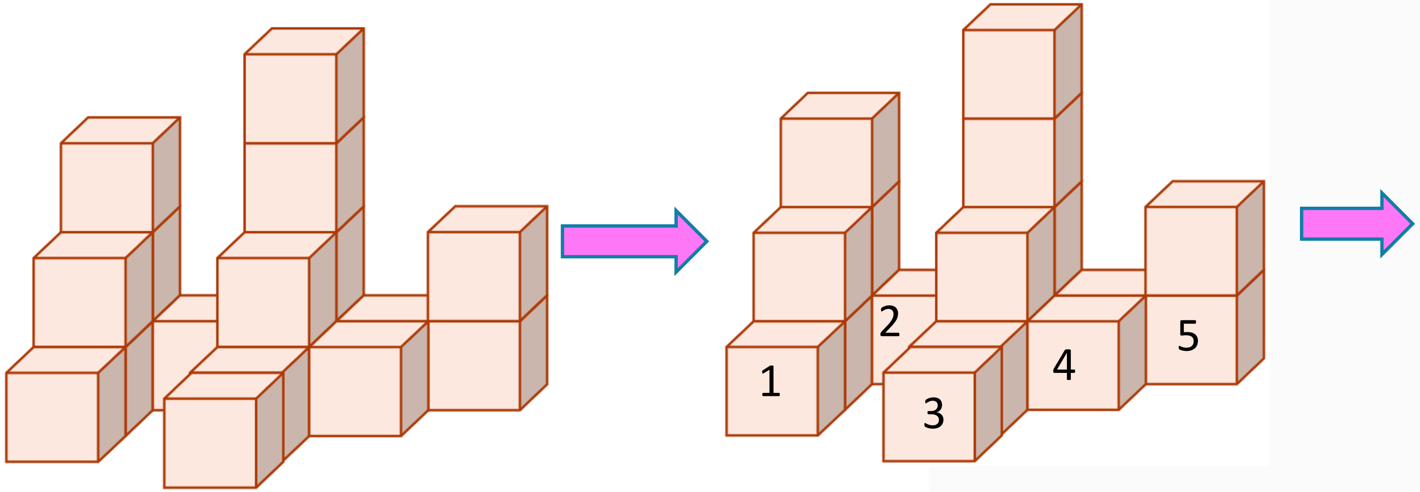
Javob. *E’zoza Barnoga 23800 so‘m pulini bergan*

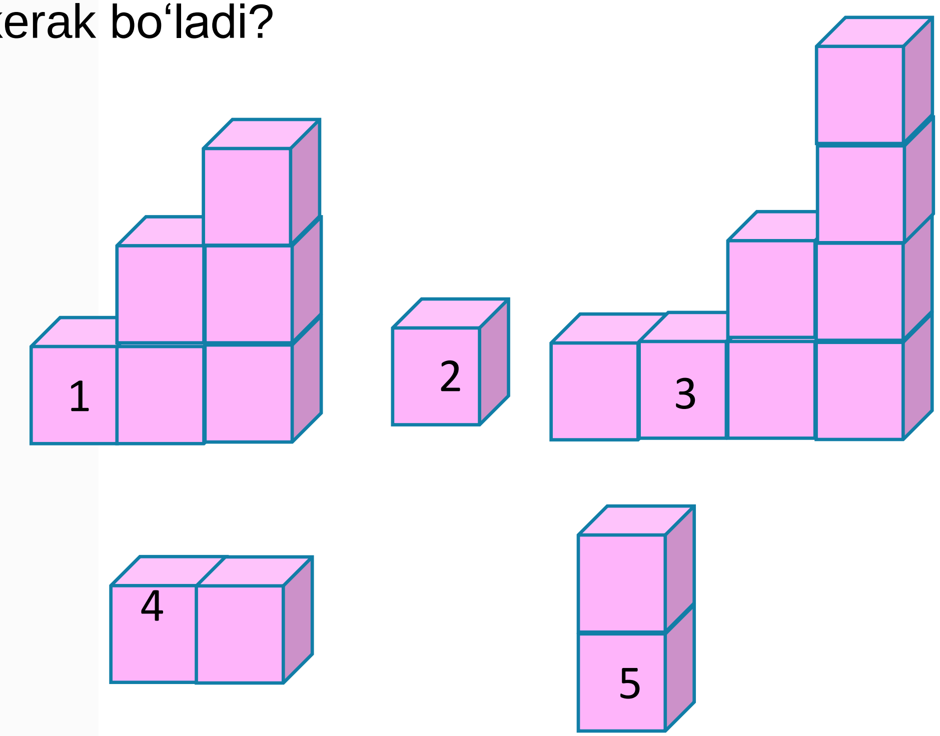
MRT ni CEREBRY topshiriqlarida qo‘llash

Tursunoy xola va uning qizi quyida ko‘rsatilganidek 3 o‘lchamli shakl yashash uchun o‘n to‘qqizta qirrasi 3 cmlik kubdan foydalanadilar.

a)Ushbu uch o‘lchamli shaklni yasash uchun nechta kub kerak bo‘ladi?

b)Uch o‘lchamli shaklning umumiy hajmi qancha?





Yechim: a)6+1+8+2+2=19 ta

b) bitta kubning hajmi

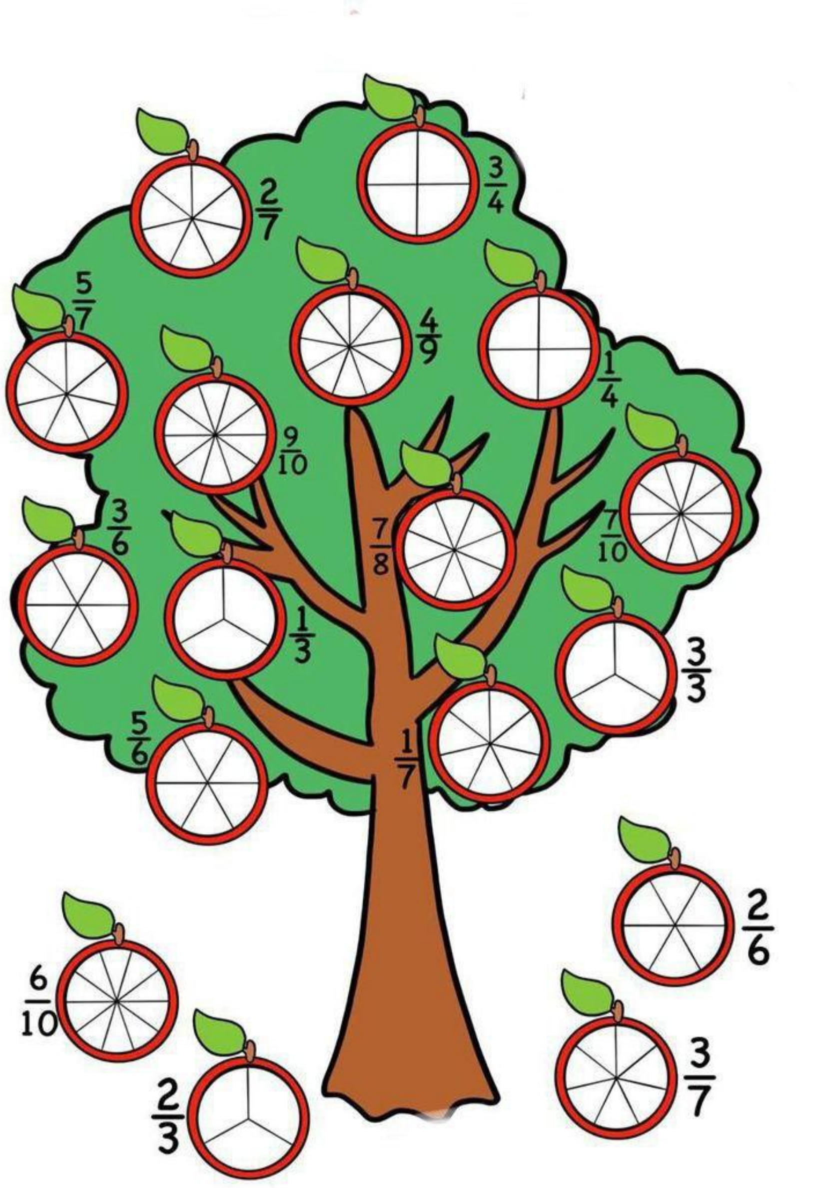
3*3*3=27

Shaklning hajmi: 27*19=513 cm^3

Ta’limda zamonaviy metodikalarni qo‘llash: raqamlashgan dunyoda fanlarni o‘rganish imkoniyatini va samaradorlikni oshiradi

Masalan, darslarda wordwall.net, kahoot , Baamboozle.com, Quizlet.com kabi platformalardan foydalanish o‘quvchilarning fanga bo‘lgan qiziqishini va bilim samaradorligini oshiradi

Kasrning asosiy xossasi mavzusida qo‘llash uchun



“Sehrli daraxt” metodikasi.

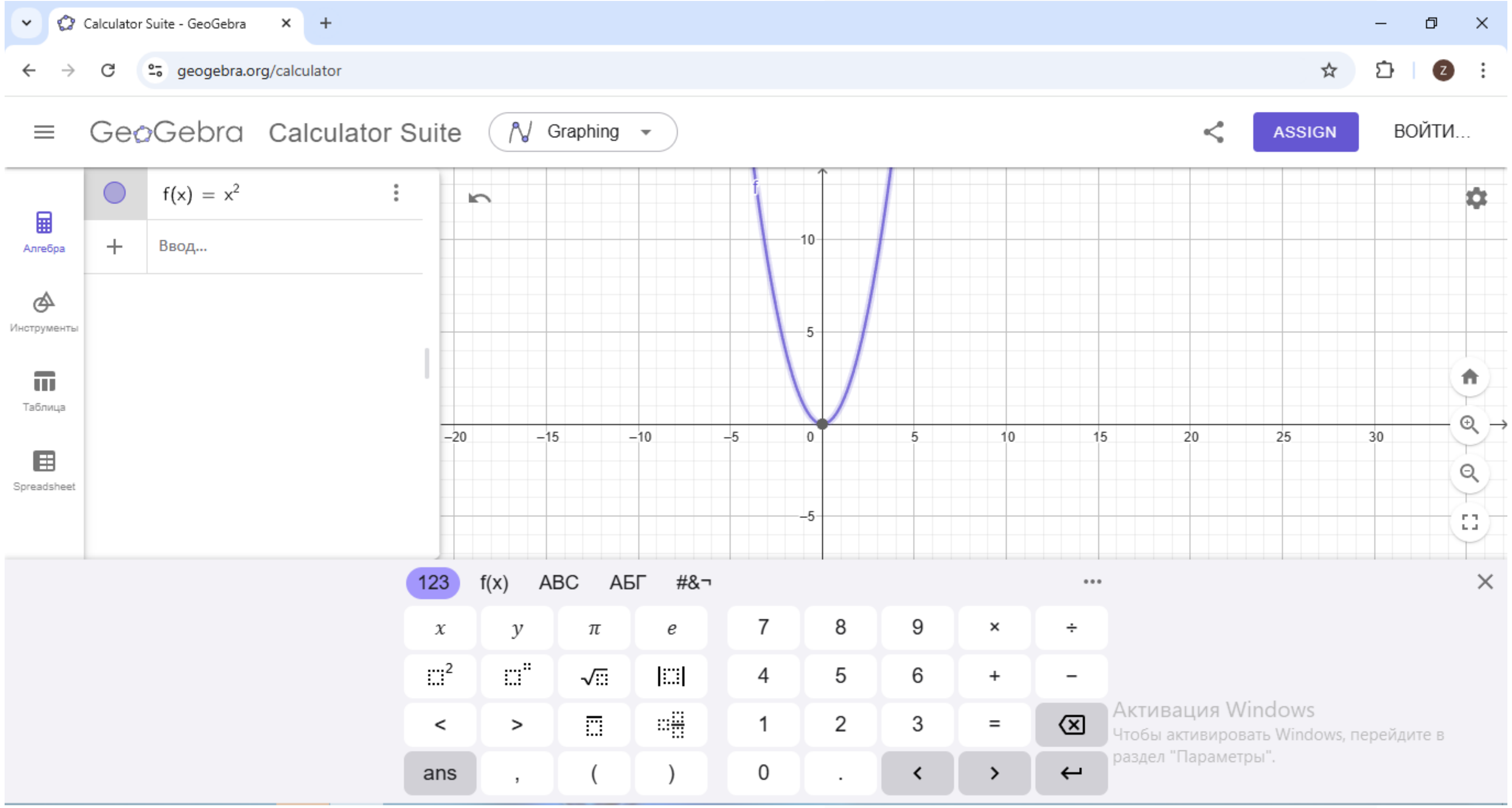
Bunda o‘quvchilar pastdagi meva bo‘laklariga teng bo‘lgan daraxtdagi meva bo‘lagiga etib yopishtirib qo‘yishlari kerak.

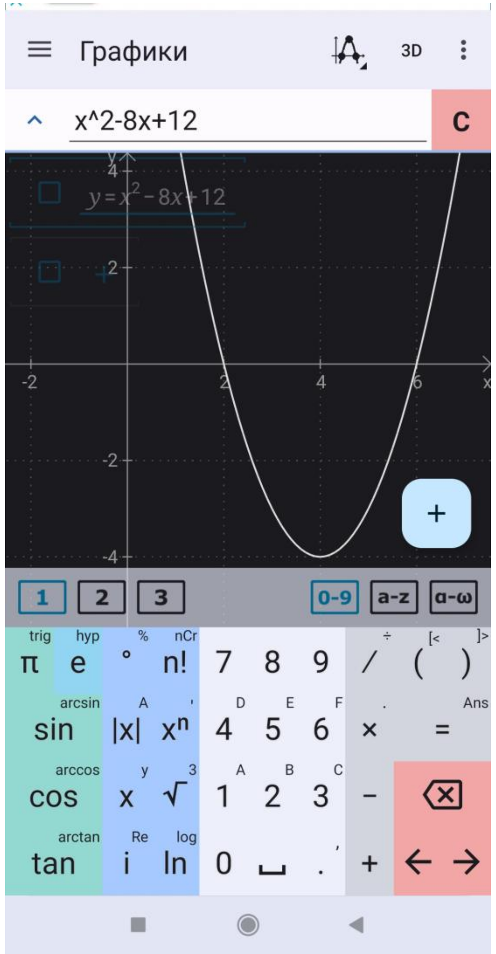
$$\frac{2}{6} = \frac{1}{3}$$

Shunga o‘xshash shakllar va rasmlarni EdrawMax dasturi orqali tayyorlash mumkin

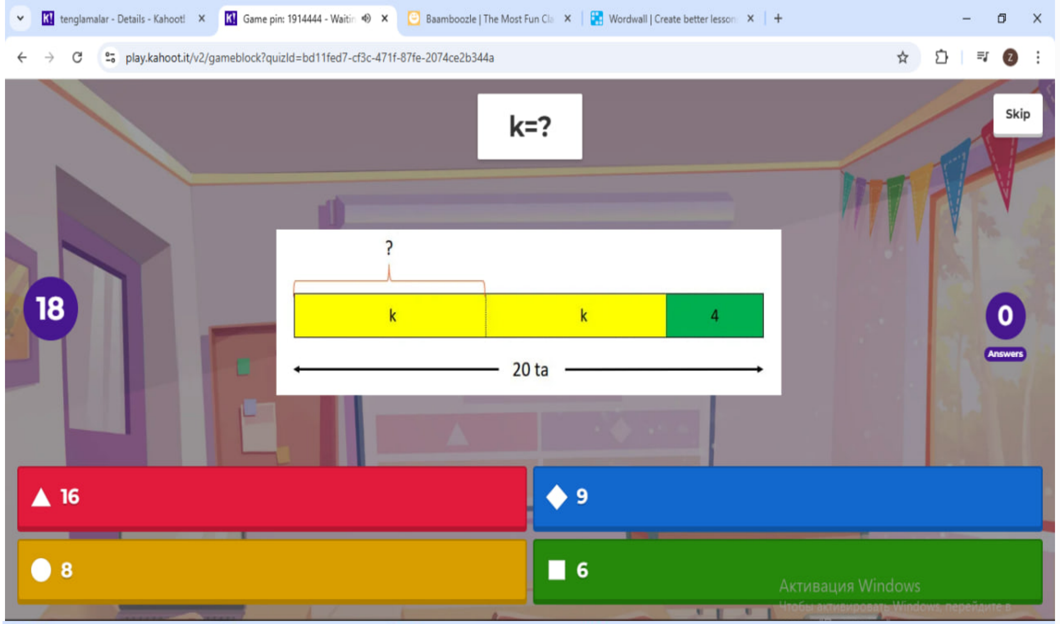
FUNKSIYALAR MAVZUSI

Funksiyalar mavzusini o‘tishda GeoGebra yoki GrafikCalkulyator dasturlaridan foydalanish o‘quvchilarning ham matematik va ham raqamli dasturlardan foydalanish ko‘nikmalarini rivojlantiradi

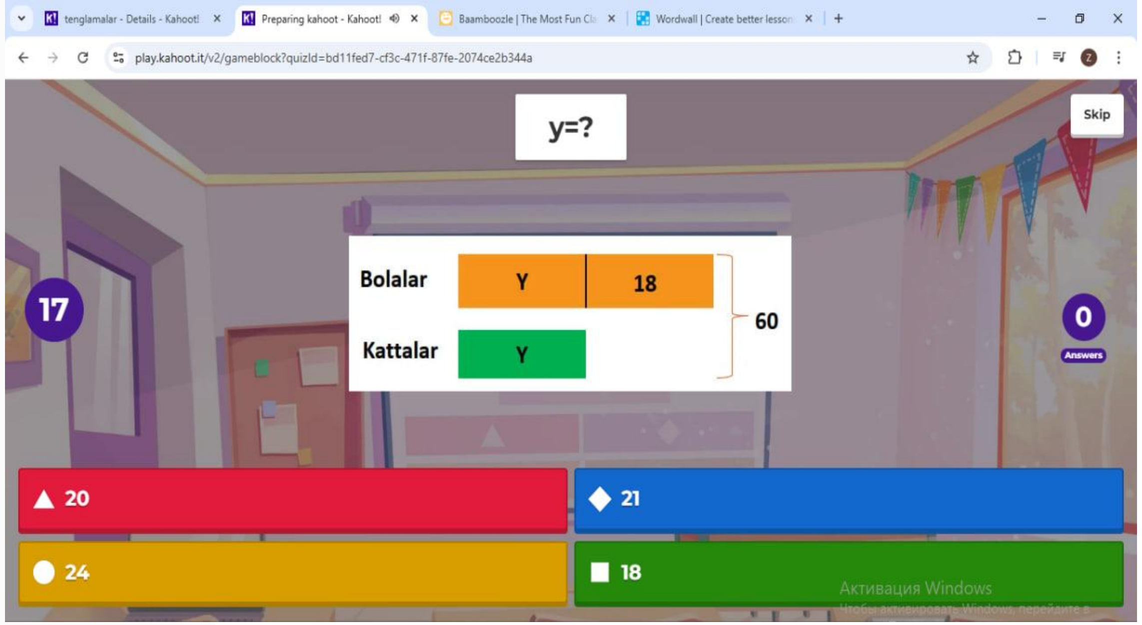




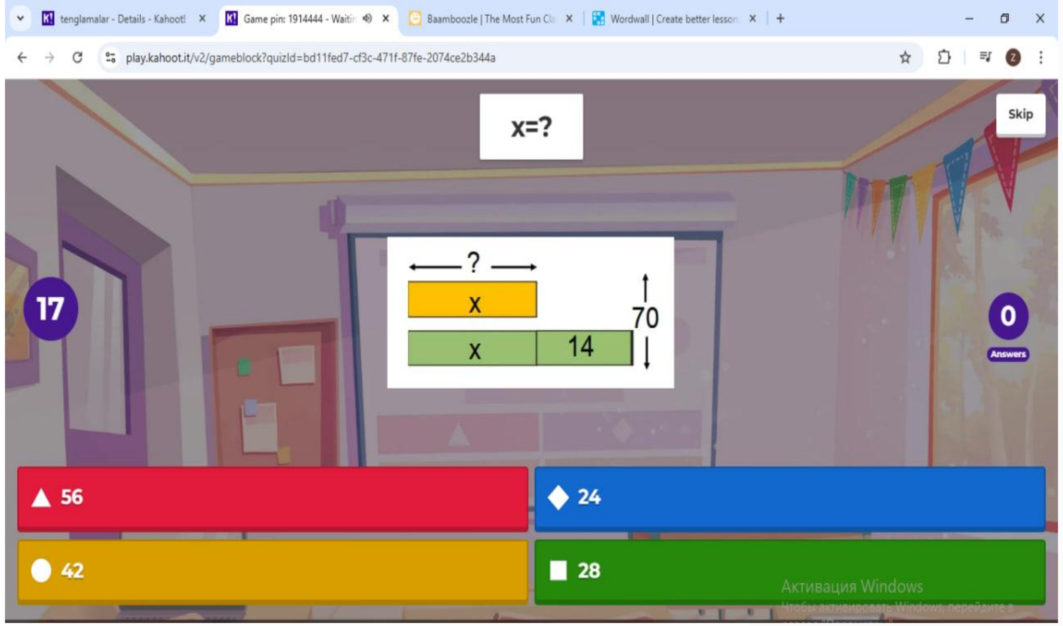
Kahoot.com



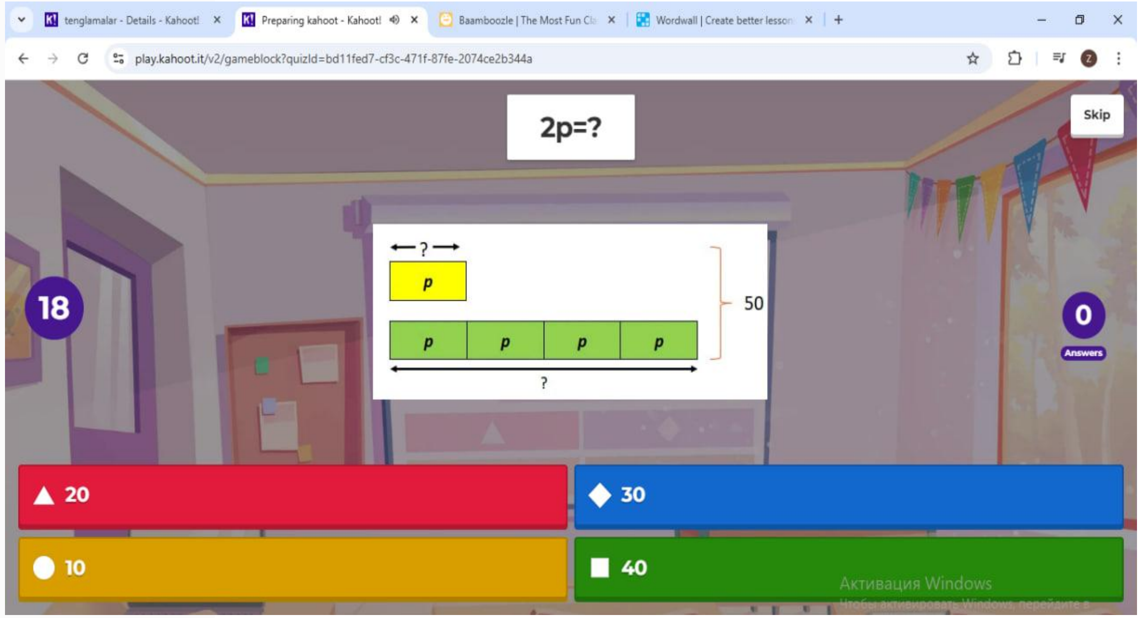
play.kahoot.it/v2/gameblock?quizId=bd11fed7-cf3c-471f-87fe-2074ce2b344a
k=?
Skip
?
k
k
4
20 ta
18
0
Answers
16
9
8
6
Активация Windows



play.kahoot.it/v2/gameblock?quizId=bd11fed7-cf3c-471f-87fe-2074ce2b344a
y=?
Skip
Bolalar
Y
18
60
Kattalar
Y
17
0
Answers
20
21
24
18
Активация Windows

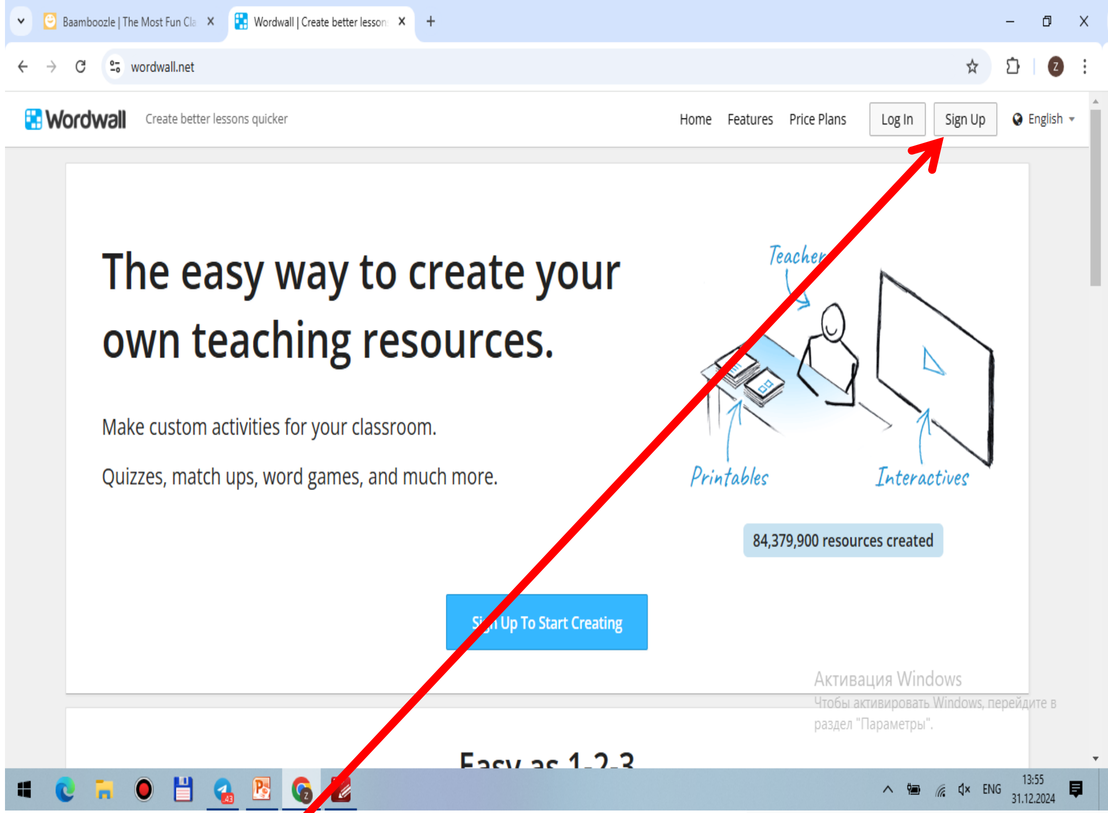


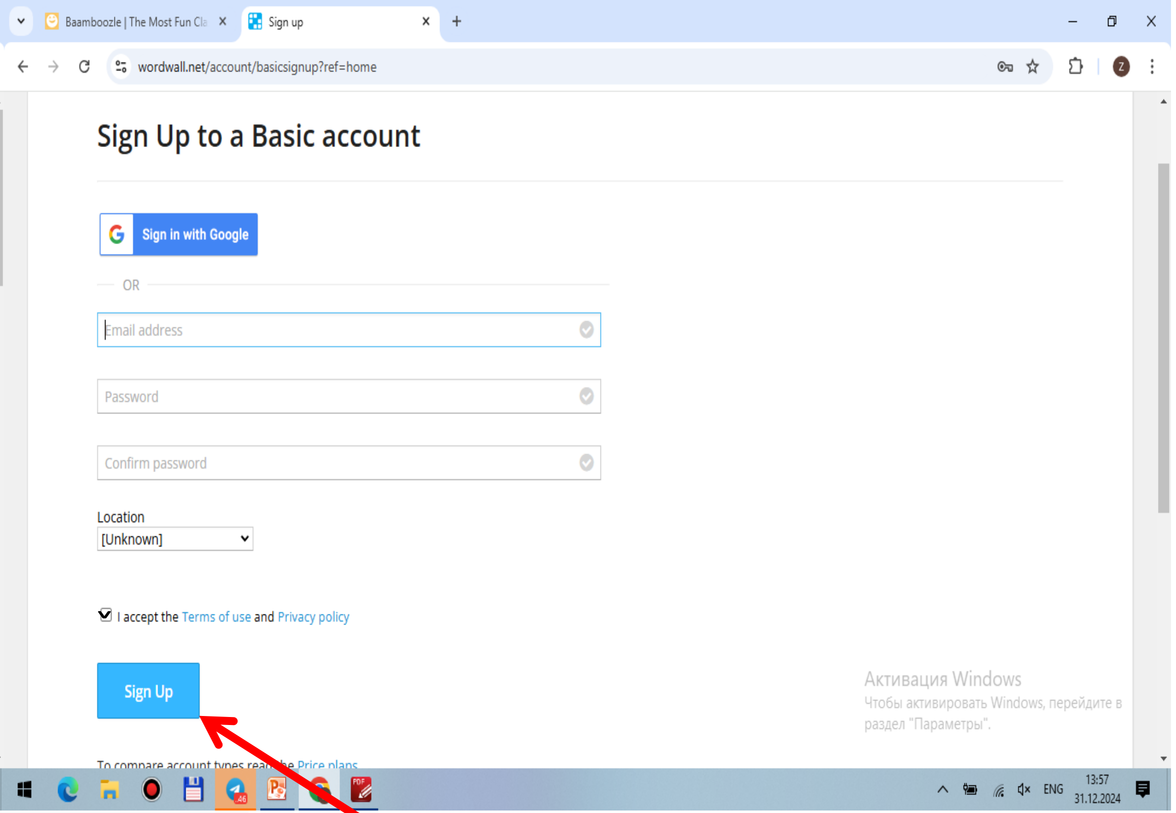
play.kahoot.it/v2/gameblock?quizId=bd11fed7-cf3c-471f-87fe-2074ce2b344a
x=?
Skip
?
x
70
x
14
17
0
Answers
56
24
42
28
Активация Windows



play.kahoot.it/v2/gameblock?quizId=bd11fed7-cf3c-471f-87fe-2074ce2b344a
2p=?
Skip
?
p
50
p
p
p
p
?
18
0
Answers
20
30
10
40
Активация Windows

wordwall.net

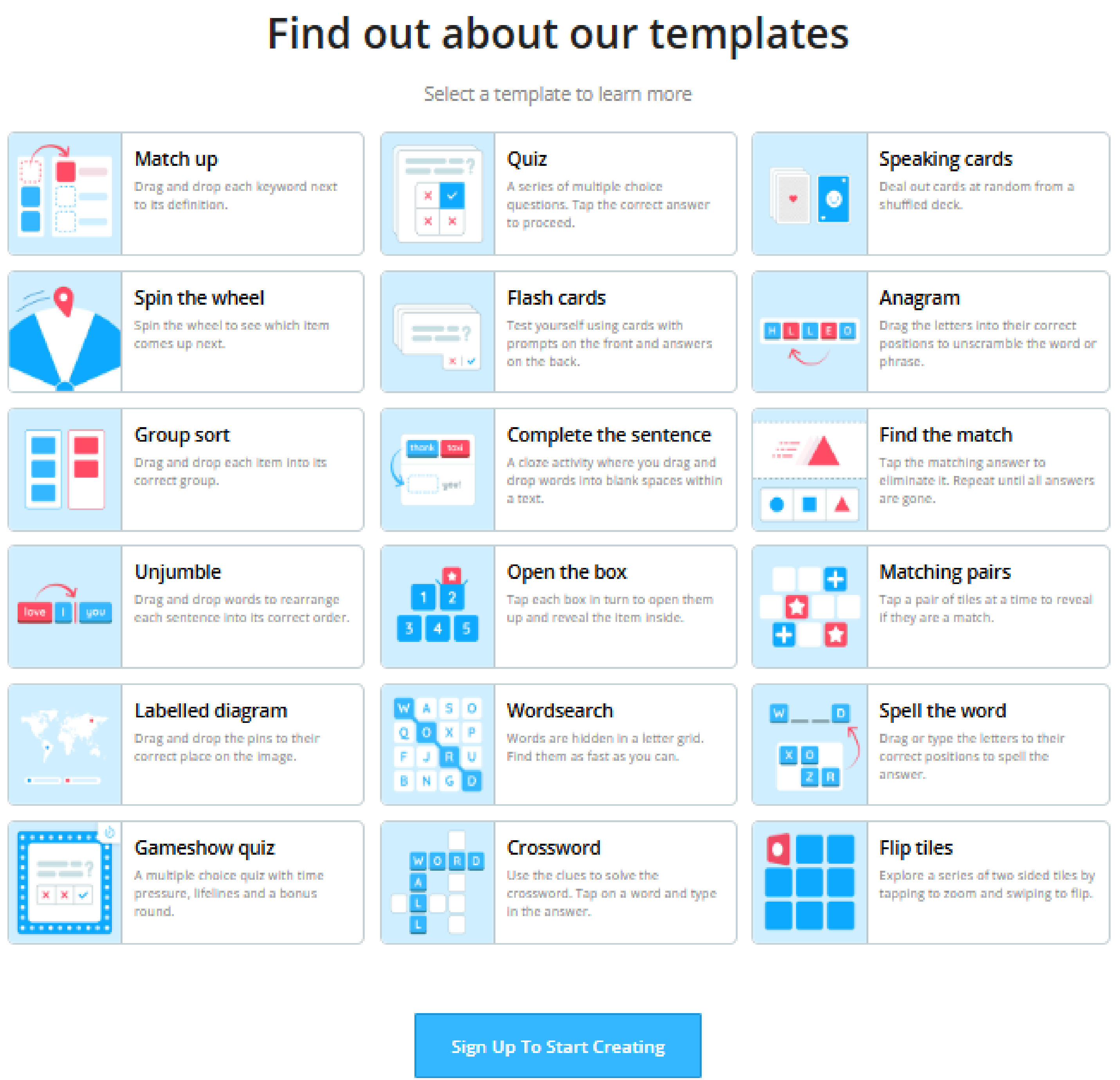




Ro‘yxatdan o‘tish uchun “Sign Up” tugmasi bosiladi

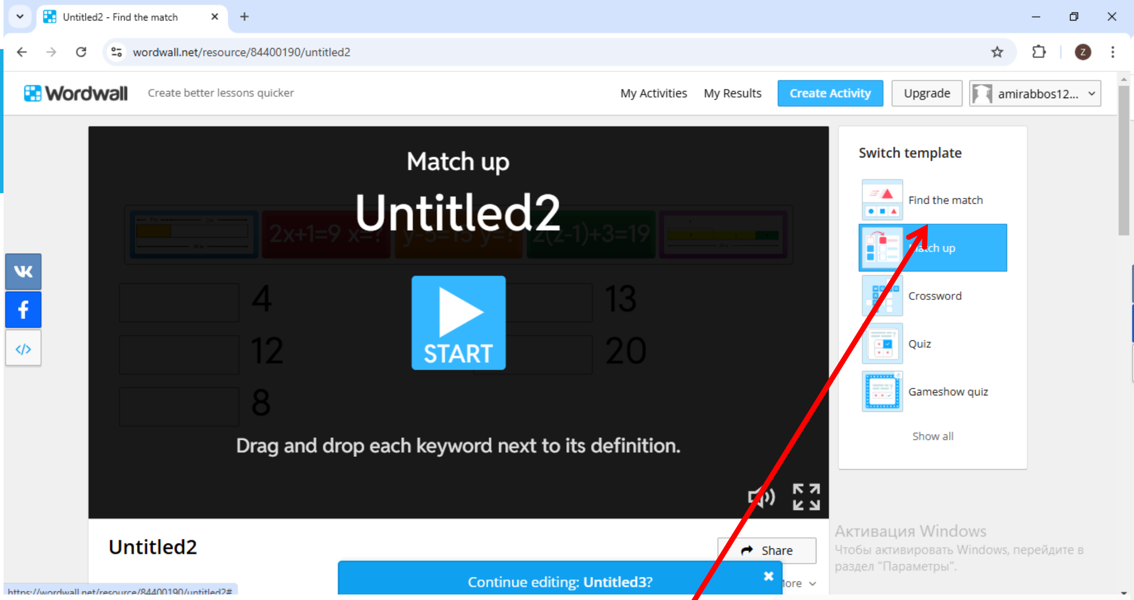
email pochta manzilingiz hamda parol kiriting va “Sign Up” tugmasi bosiladi

Sizga bir nechta shablonlar tavsiya etiladi.
Mavzu va maqsadingizga qarab tanlab olasiz.
Har bir shablonning bir necha xil ko‘rinishlari bor.

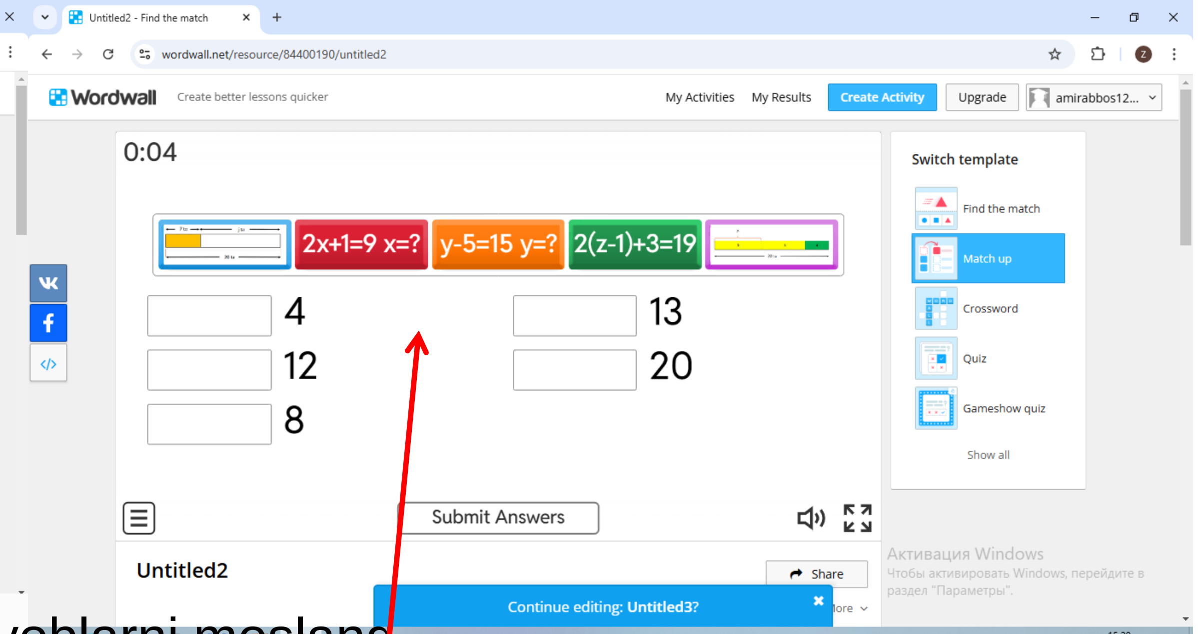


Актива
Чтобы ак
раздел "

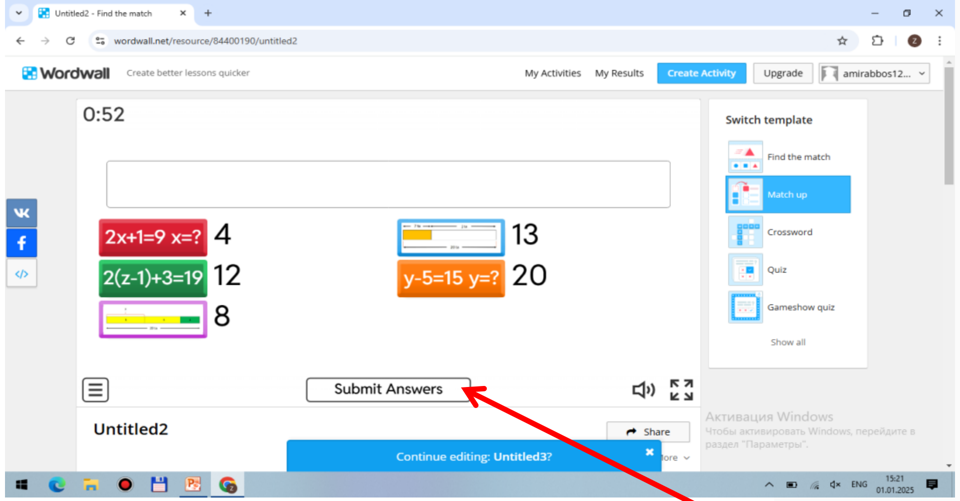
wordwall.net



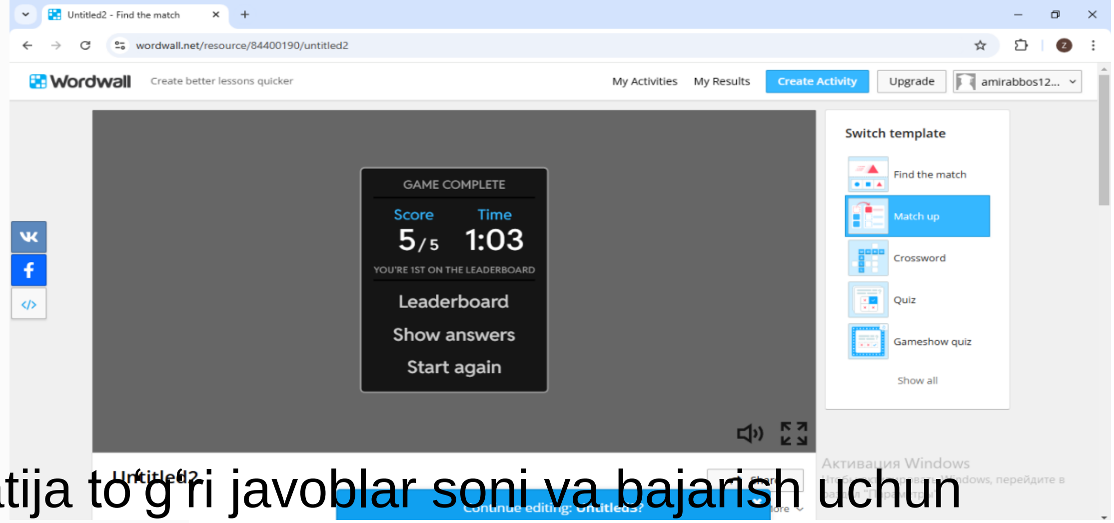
Topshiriq shaklini tanlang



Javoblarni moslang

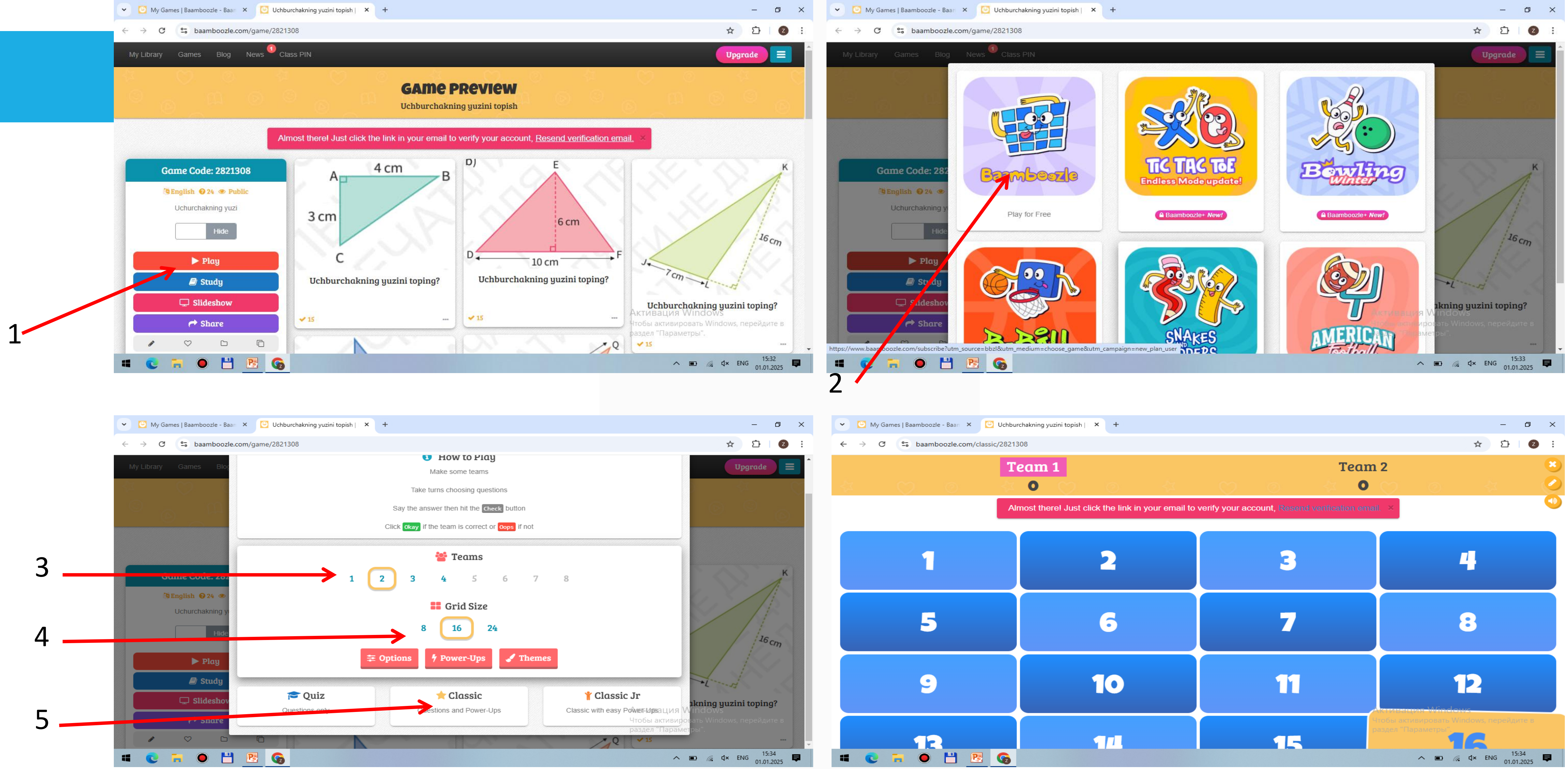


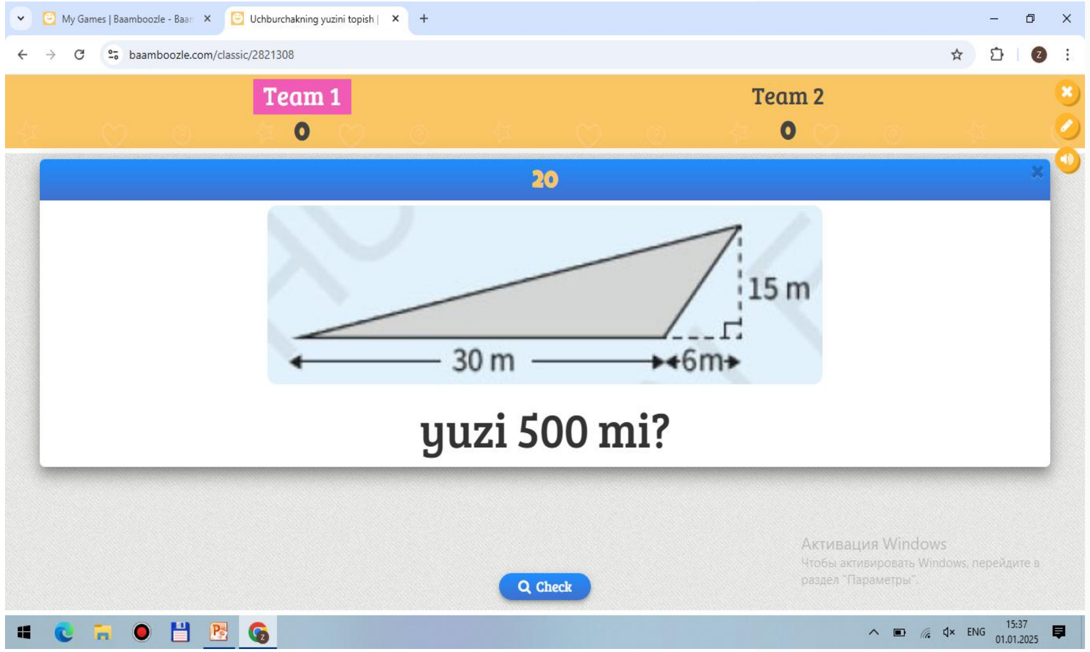
Javoblarni qabul qilishni bosing

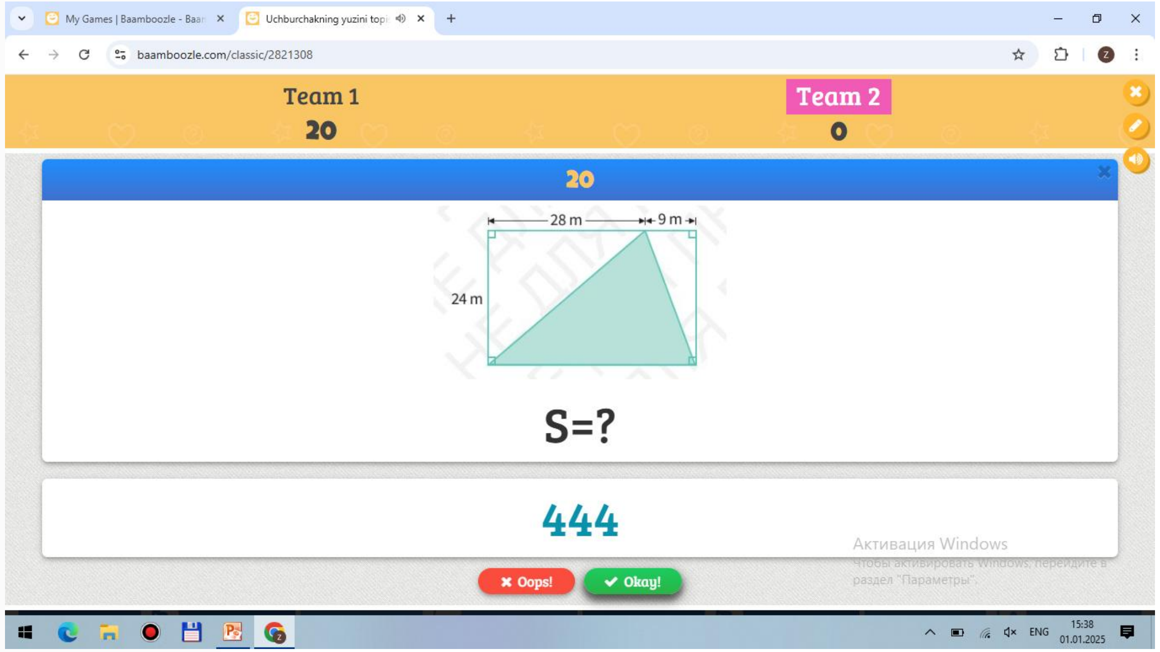


Natija to'g'ri javoblar soni va bajarish uchun ketgan vaqtni chiqarib beradi

Baamboozle.com “Uchburchakning yuzini topish”







Guruhlarga galma-galdan savollar va kutilmagan kartochkalar beriladi. Musobaqa oxirida g‘olib guruh e’lon qilinadi.

E’TIBORINGIZ UCHUN RAHMAT!

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