

STEAM Trail

Class Level: 3rd & 4th

This document presents a range of activities and associated resources that could be used for a STEAM trail on the school grounds. Teachers are free to choose the sections from this document that they wish to complete with their class. The child can think about and discuss the answers, draw or write the answers or record their responses using digital technology.

Before leaving the classroom

Computational thinking activity

Imagine an alien is visiting your classroom and wants to find the school yard. Choose a specific point on the school yard, e.g. the ash tree, the buddy bench, etc. Write or record step-by-step instructions for how to get from your classroom to the specific point you have chosen. Include instructions for opening doors, exact number of steps to take in each direction, left/right turns, etc. You can also add a map to accompany your instructions. Once you have completed your instructions, challenge someone to follow your instructions without telling them the final destination!

Follow up/Extension activity: Lightbot: Encourage pupils to apply their computational thinking skills to a coding activity- this free online resource challenges pupils to create instructions to guide a robot through a maze. See www.lightbot.com (No account needed).

Land art

Land art is created outdoors using natural materials and objects to make patterns, shapes and visual designs. Explore and discuss the features of some inspirational work by land artists to inspire you before you go outdoors. E.g. Andy Goldsworthy, Gerry Barry, Chris Drury, Marc Pouyet, Richard Schilling. Also see <http://www.landartforkids.com/>
<https://www.marc-pouyet.net/>
<http://gerrybarryartworks.com/albums/land-art/>

Go to Destination

Estimate first and record your steps here

Steps to	The ash tree	The school wall	The grassy area	The school gate	Front door of the school building	The hedgerow
Estimate						
Number of steps						

Ash tree

- Sketch, annotate and reflect: Observe the tree carefully and create an annotated (labelled) sketch of this tree, using pencils or digital tools. What would this tree look like in winter/spring/summer/autumn? Note your observations in your Tree Journal- a template with suggested questions can be found at <https://pdst.ie/sites/default/files/Tree%20Jounal%20Task%20Card.JPG>
- Record: Take a bark/leaf rubbing
- Observe and record: Is this tree a good home for birds? Why?
- Estimate how tall the tree is.
- Calculate: Tree height.

To calculate the height of a tree, use a right angled isosceles triangle (a set square works well) and hold it so that one of the equal sides is parallel to the ground and the other equal side is perpendicular to the ground. Hold the triangle at eye level and walk back from the tree until its top can be sighted along the edge of the triangle. The height of the tree is equal to the distance you are standing away from the tree plus your own height. Note down your measurement. Compare your measurement with other people in your class.



School wall

- Estimate: How many blocks/bricks do you think were used to construct the wall at the front of your school? What strategies could you use to figure out your answer?
- Observe and check: How many doors open onto the school yard?
- Observe and record: What is the registration number of the car nearest the school?
- Figure it out: What is the total of all the digits? How many different numbers can you make by reordering the digits? What is the largest number you can make using the last three digits? What is the smallest number you can make using the last three digits? What is the difference between the largest number and smallest number you have made?



Image Source: Maths Eyes Resource Pack. www.haveyougotmathseyes.com

Grassy area

Micro hike:

Estimate: How far is one metre?

Think and discuss: What is the furthest you've walked in one day? Less than 1km, between 1-10km, more than 10km?

Measure: Using string/wool, measure out one metre of string for each hiker/pair of hikers. This string will be your hiking trail.

Imagine: Now imagine you have shrunk to the size of your thumbnail.

Lay down your trail on the ground. Begin your hike at one of end of the string, getting very close and looking at every detail. Hike slowly-remember you are only the size of a thumbnail and have very small legs!

Observe and record: What are you discovering? Record your observations using writing, photos, drawings.

Reflect: In what ways did pretending you are tiny change your perspective on the hike?

School gate

Observe and record:

- How many right angles can you find on the school gate?
- What materials can you identify in the gate? Which are natural, and which are man-made?
- What angle will the rotation of the gate be when it is opened/closed?
- How old do you think the gate is? When do you think it was made? Are there any clues on the gate that could tell us?
- How does the gate work? Explain how it works, using words, pictures, photographs. What forces are needed Push Pull Twist

Estimate: The width/height of the gate.

Measure: Using your hands, measure the width/height of the gate. Note your answer.

Did you get the same answer as your partner? Why do you think this is? How could you verify your measurements using measuring equipment?



Image source: PDST Primary STEM

Front door of school building

Observe and record:

- What materials can you identify in the door and door frame? Which are man-made and which are natural?
- What vertical, horizontal, parallel and perpendicular lines can you identify on the door? Record the lines you find by sketching an annotated (labelled) diagram.

Observe and explain: How do you open the door? Explain how it works, using words and annotated drawings or photographs. Identify the different forces used when opening the door (e.g. Push, pull, twist) and add these to your annotated drawing or photograph to show where they are used when opening the door.

Hedgerow

Observe and record:

- Close your eyes. Listen carefully for one minute. What different sounds can you hear? Create a list of the different sounds.
- What different living things can you spot? Pupils can use an appropriate spotter sheet to guide observations, e.g. <https://www.wildlifewatch.org.uk/activities>

Sketch and annotate: Choose a bird/minibeast you have spotted and create an annotated (labelled) sketch. What do you notice about the different parts of the creature's body?

Examine the ground area near the hedgerow. Gather some loose leaves which are already on the ground (Avoid picking leaves from trees). How many leaves make one metre? Note your answer. Did you get the same answer as your partner? Why do you think this is?



Image source: Juliet Robertson.

http://www.cosyfund.com/Userfiles/teacher/MESSY_MATHS_poster%202017%20FINAL.pdf

Sort the leaves into as many different sets as you can think of (e.g. Sort by source, size, colour, lines of symmetry, number of leaflets). Play "Guess my rule" with a partner- your partner must guess the criteria by which the leaves have been sorted.

- Explore and record: What fraction of your total set of leaves are symmetrical?
- Create a leaf pictogram and take a photo or draw a picture of the pictogram you have made.

Create: Use your leaves to create a piece of land art.



Images source: Marc Pouyet

<https://www.marc-pouyet.net/nature-gallery/#gallery/d2b61eb21c5ca91a40fe572e15c04352/301>

Stop and solve

Design your yard space

- Your class has a yard area that is 25 metres squared (m^2) to play in at break time.
- The yard area of 25 square metres needs to be divided so that each group in your class has their own space to play. There are 5 groups, and each group gets 5 squares to play in, all 5 of these squares must be joined together. What different ways can you divide up the yard? Use the space below to create your different yard designs, each box stands for $1m^2$. Use a different colour to shade in the area for each group. How many different layouts can you come up with? Use extra paper if you like. Can you find all the possible layouts? How do you know you have found all the possible layouts?

Example:

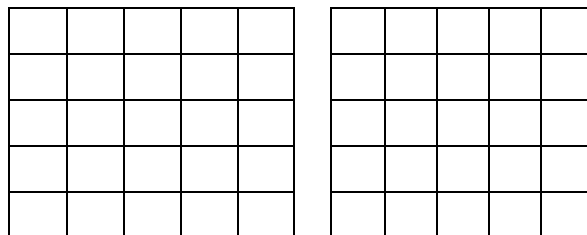
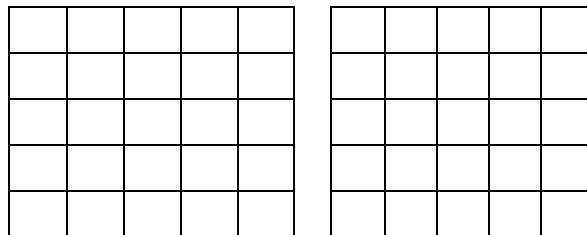
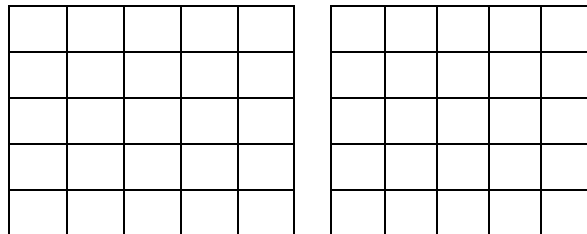
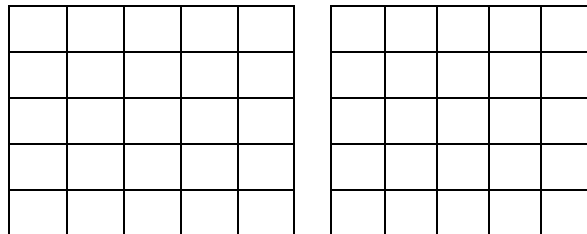
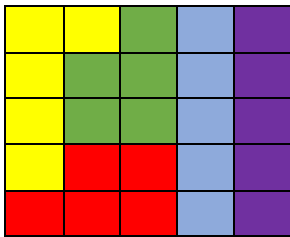




Image source: PDST Move well, move often

Play equipment for yard

You are in charge of the yard games equipment for your class. There are five groups in your class. Each group is to be given one yard game each day. Every day after break time, the equipment gets washed and tidied away.

Plastic football	Rubber basketball	Tennis balls
Skipping ropes	Fabric beanbags	Plastic frisbee
Hula hoops	Foam javelins	

Choose some suitable games equipment from the above list for the groups to play with on yard. Which equipment would not be suitable? Why? (Think about materials, yard space, safety). Note down your ideas and discuss with your partner.

Create a weekly timetable so that each class knows what equipment they are using each day. Remember:

- Each group should get a different game each day!
- The equipment you choose must be washable!

Creative/Open-ended activities

Make your own socially-distant human maths art.

a) Divide your class into four by giving everyone a number from 1 to 4.

E.g. 1,2,3,4,1,2,3,4,1,2,3.....

Your number tells you your rule:

e.g. Number 1: Stand like a ruler

Number 2: Stand like a star

Number 3: * Create your own shape*

Number 4: * Create your own shape*

The group then stand in a repeating pattern, maintaining social distance

b) Rearrange the pattern and form another piece of human maths art.

c) Draw a picture or write down in symbols your favourite piece of human maths art.

d) Change the rules and create more art.

Think and discuss

Look at the below image. What do you think? Would everyone have the same answer? Why?



Image Source: Maths Eyes Resource Pack. www.haveyougotmathseyes.com

Back in the class: Follow up activities

- Whole class collation of data from investigations, for example, measurement of tree height, etc.
- Whole class discussion focused on observations and recorded data from each stopping point
- Reflective journalling activities in response to STEAM trail work
- Pupils create a Kahoot quiz for their peers, based on their trail

Rian ETIEM

Leibhéal Ranga: Rang a trí agus rang a ceathair

Cuirtear raon gníomhaíochtaí agus acmhainní lena mbaineann i láthair sa doiciméad seo a d'fhéadfaí a úsáid le haghaidh rian ETIEM ar thailte na scoile. Is faoin múinteoir atá sé na codanna den doiciméad sin ar mian leis a dhéanamh lena rang a roghnú. Is féidir leis an leanbh smaoineamh faoi na freagraí agus plé a dhéanamh orthu, agus is féidir leis iad a tharraingt, a scríobh nó iad a thaifeadadh trí theicneolaíocht dhigiteach a úsáid.

Roimh daoibh an seomra ranga a fhágáil

Gníomhaíocht bunaithe ar an smaointeoireacht ríomhaireachtúil

Samhlaíí go bhfuil eachtrán ag teacht ar cuairt chun an tseomra ranga agus gur mian leis clós na scoile a aimsiú.

Roghnaíí pointe ar leith ar an gclós scoile, e.g. an crann fuinseoige, an binse do chairde, etc.

Scríobhaíí síos nó taifeadaíí treoracha céim ar chéim don eachtrán ar an mbealach le dul ón seomra ranga chuig an bpointe áirithe a roghnaigh sibh. Déanaíí treoracha chun doras a oscailt, an líon sonrach céimeanna a ghlactar i dtreo amháin, casadh ar chlé/ar dheis, etc., a chur sna treoracha.

Féadfaidh sibh mapa a chur leis na treoracha freisin.

Iarraíí ar dhuine eile na treoracha a leanúint nuair atá siad réidh, ach ná hinsíí an ceann scríbe dóibh!

Gníomhaíocht leantach/fairsingithe: Lightbot: Iarr ar na daltaí a scileanna smaointeoireachta ríomhaireachtúla a úsáid chun gníomhaíocht chódála a dhéanamh - cuireann an acmhainn saor in aisce ar líne seo dúshlán roimh dhaltáí a dtreoracha féin a chumadh chun róbat a threorú trí chathair ghríobháin. Féach ar www.lightbot.com (Níl cuntas de dhíth).

Ealaín talún

Cruthaítear ealaín talún taobh amuigh ag úsáid ábhar agus rudaí nádúrtha chun pátrúin, cruthanna agus dearaí físiúla a chruthú. Déanaíí roinnt de na saothair spreagúla a chruthaigh ealaíontóirí talún a fhiosrú agus a phlé. Spreagfaidh na saothair sin sibh sula dtéann sibh taobh amuigh. E.g. Andy Goldsworthy, Gerry Barry, Chris Drury, Marc Pouyet, Richard Schilling. Féach freisin <http://www.landartforkids.com/>.

<https://www.marc-pouyet.net/>

<http://gerrybarryartworks.com/albums/land-art/>

Téigí chuig an gCeann Scríbe

Déanaigí an meastachán i dtosach agus taifeadaigí na céimeanna anseo

An líon céimeanna a thógfaidh sé le dul chuig:	An crann fuinseoige	Balla na scoile	An limistéar féarach	Geata na scoile	Doras tosaigh na scoile	An fál sceach
Meastachán						
Líon céimeanna						

An crann fuinseoige

- Sceitseáil, anótáil agus machnamh: Déanaigí an crann a bhreathnú go cúramach agus cruthaigí sceitse anótáilte (le lipéid) den chrann seo ag úsáid peann luaidhe nó uirlisí digiteacha. Cén chuma a bheadh ar an gcrann seo sa gheimhreadh/san earrach/sa samhradh/san fhómhar? Breacaigí na breathnóireachtaí síos sa Dialann Crainn - is féidir teimpléad agus ceisteanna molta a aimsiú ag <https://pdst.ie/sites/default/files/Tree%20Jounal%20Task%20Card.JPG>
- Taifeadadh: Déanaigí cuimilteán coirte/duilleoige
- Breathnóireacht agus taifeadadh: An baile maith é an crann seo d'éin? Cén fáth?
- Déanaigí meastachán ar chomh hard é an crann.
- Ríomh: Airde an chrainn.

Chun airde an chrainn a ríomh, úsáidigí triantán comhchosach dronuilleach (oibríonn dronbhacart go maith chuige seo) agus beirigí greim air ionas go mbeidh ceann amháin den dhá shlios chothroma comhthreomhar leis an talamh agus an dara slios cothrom ingearach leis an talamh. Coinnígí an triantán ag leibhéal na súl agus siúlaidigí ar ais ón gcrann go dtí gur féidir barr an chrainn a fheiceáil thar imeall an triantáin. Tá airde an chrainn cothrom leis an achar idir an spota ar a bhfuil sibh in bhur seasamh agus an crann móide bhur n-airde féin. Breacaigí síos an tomhas. Cuirigí an tomhas i gcomparáid leis an tomhas a fhaigheann daoine eile sa rang.



Balla na scoile

- Meastachán: Cé mhéad bloc/bríce a úsáideadh chun an balla ag aghaidh na scoile a thógáil meas sibh? Cad iad na straitéisí ar féidir libh a úsáid chun an freagra a dhéanamh amach?
- Breathnóireacht agus seiceáil: Cé mhéad doras a osclaítear amach ar chlós na scoile?
- Breathnóireacht agus taifeadadh: Cad í uimhir chláirúcháin an chairr is gaire den scoil?
- Oibriú amach: Cad é iomlán na ndigití uile? Cé mhéad uimhir éagsúil ar féidir libh a dhéanamh ag cur na ndigití in ord nua? Cad í an uimhir is mó ar féidir libh a dhéanamh ag úsáid na dtrí dhigit dheireanacha amháin? Cad í an uimhir is lú ar féidir libh a dhéanamh ag úsáid na dtrí dhigit dheireanacha amháin? Cad é an difríocht idir an uimhir is mó agus an uimhir is lú ar éirigh libh a dhéanamh?



Foinse na híomhá: Pacáiste Acmhainní de chuid 'Maths Eyes'. www.haveyougotmathseyes.com

Limistéar féarach

Siúlóid bheag:

Meastachán: Cén fhad é méadar amháin?

Smaoineamh agus plé: Cad é an t-achar ba mhó ar shiúil tú in aon lá amháin? Níos lú ná 1 km, idir 1-10km, níos mó ná 10 km?

Tomhas: Ag úsáid sreangán/olla, tomhaisigí méadar amháin de shreangán le haghaidh gach siúlóra/beirte siúlóirí. Is é an sreangán an rian siúlóide

Samhlú: Anois samhlaigí gur crapadh sibh agus go bhfuil sibh ar cóimhéid le hionga ordóige.

Leagáigí an rian amach ar an talamh. Tosaigí ar an tsiúlóid ag taobh amháin den sreangán, ag cromadh síos ionas go mbeidh sibh gar don sreangán agus ag breathnú ar gach aon mhionsonra. Siúlaigí go mall, ná déanaigí dearmad go bhfuil sibh ar cóimhéid le hionga ordóige agus go bhfuil cosa an-bheag oraibh!

Breathnóireacht agus taifeadadh: Cad atá á aimsiú agaibh? Déanaigí na breathnóireachtaí a thaifeadadh ag scríobh agus ag úsáid grianghraf, líníochtaí.

Machnamh: Cén chaoi ar athraigh an t-athrú sin, nuair a lig sibh oraibh féin go raibh sibh an-bheag, bhur ndearcadh agus sibh ar an tsiúlóid?

Geata na scoile

Breathnóireacht agus taifeadadh:

- Cé mhéad dronuillinn ar féidir libh a aimsiú ar gheata na scoile?
- Cad iad na hábhair ar féidir libh a shainaitheint sa gheata? Cé acu atá nádúrtha agus cé acu atá de dhéantús an duine?
- Cén cineál uillinne a chruthófar nuair a osclaítear/dhúntar an geata?
- Cé mhéad bliain a bhfuil an geata ann dar libh? Cathain a rinneadh é dar libh? An bhfuil aon leid le fáil ar an ngeata ar féidir cuidiú linn é sin a dhéanamh amach?
- Cén chaoi a n-oibríonn an geata? Mínigh an bealach a n-oibríonn sé ag úsáid focal, íomhánna agus grianghraf. Cad iad na fórsaí a theastaíonn Brúigh Tarraing Cas

Meastachán: Leithead/airde an gheata.

Tomhas: Úsáid bhur lámha chun leithead/airde an gheata a thomhas. Breacaigí síos an freagra. An bhfuair gach beirt an freagra céanna? Cén fáth ar tharla sé sin dar libh? Cén chaoi ar bhféadfaidh sibh bhur dtomhais a dheimhniú ag úsáid trealamh tomhais?



Foinse na híomhá: ETIM Bunscoile SFGM

Doras tosaigh na scoile

Breathnóireacht agus taifeadadh:

- Cad iad na hábhair ar féidir libh a shainaitheint sa doras agus sa fráma dorais? Cé acu atá de dhéantús an duine agus cé acu atá nádúrtha?

- Cad iad na línte ceartingearacha, cothrománacha agus ingearach is féidir libh a shainathint ar an doras? Déanaigí taifead ar na línte a aimsíonn sibh agus sceitseáil léaráid anótáilte (le lipéid).

Breathnóireacht agus míniú: Cén chaoi a n-osclaítear an doras? Mínigí an bealach a n-oibríonn sé ag úsáid focal, íomhánna anótáilte nó grianghraf. Déanaigí na fórsaí éagsúla a úsáidtear nuair a osclaítear doras a shainathint (e.g. Brúigh, tarraing, cas) agus cuir na fórsaí sin le bhur líníocht anótáilte nó le bhur ngrianghraf chun an áit a n-úsáidtear iad nuair a osclaítear an doras a chur in iúl.

Fál sceach

Breathnóireacht agus taifeadadh:

- Dúnaigí bhur súile. Éistigí go cúramach ar feadh nóiméad amháin. Cé na fuaimeanna éagsúla a chloiseann sibh? Déanaigí liosta de na fuaimeanna éagsúla.
- Cé na dúile beo éagsúla ar féidir libh a fheiceáil? Féadfaidh daltaí bileog fairtheora chuí a úsáid chun na breathnóireachtaí sin a threorú, e.g.

<https://www.wildlifewatch.org.uk/activities>

Sceitseáil agus anótáil: Roghnaigí éan/mionainmhí a chonaic sibh agus cruthaigí sceitseáil anótáilte (le lipéid) de. Cad a thugann sibh faoi deara faoi bhail éagsúla choirp an chréatúir?

Fiosraigí an talamh taobh leis an bhfál sceach. Bailigí roinnt duilleoga scaoilte atá ar an talamh cheana féin (Ná piocaigí duilleoga ó chrainn). Cé mhéad duilleog a chaithfear a úsáid chun méadar amháin a dhéanamh? Breacaigí síos an freagra. An bhfuair gach beirt an freagra céanna? Cén fáth ar tharla sé sin dar libh?



Foinse na híomhá: Juliet Robertson.

http://www.cosyfund.com/Userfiles/teacher/MESSY_MATHS_poster%202017%20FINAL.pdf

Sórtálaigí na duilleoga agus cuirigí iad ina oiread tacair éagsúla agus is féidir (e.g. sórtálaigí de réir an áit ar bailíodh iad, méide, datha, línte siméadrachta, líon na nduilleog). Imrígí "Bain triail as mo riail a thomhas" le bhur bpáirtí - ní mór don pháirtí na critéir faoinar sórtáladh na duilleoga a dhéanamh amach.

- Fiosrú agus taifeadadh: Cén codán den líon iomlán duilleog atá siméadrach?
- Cruthaigí picteagram duilleog agus glacaigí grianghraf nó tarraingigí líníocht den phicteagram nuair atá sé críochnaithe.

Cruthú: Úsáidigí na duilleoga chun saothar ealaíne talún a chruthú.



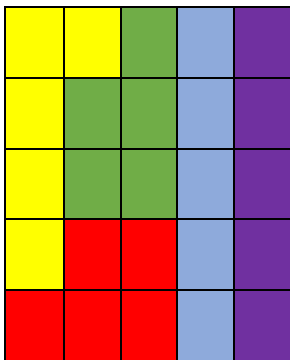
Foinse na n-íomhánna: Marc Pouyet

<https://www.marc-pouyet.net/nature-gallery/#gallery/d2b61eb21c5ca91a40fe572e15c04352/301>

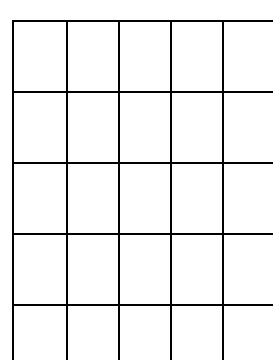
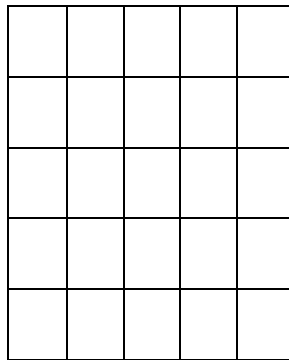
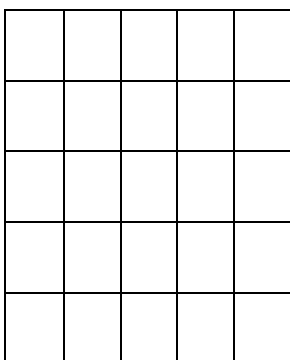
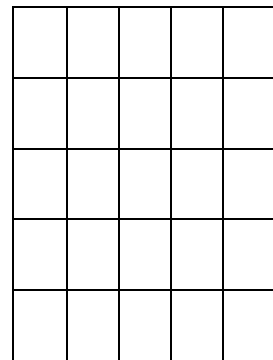
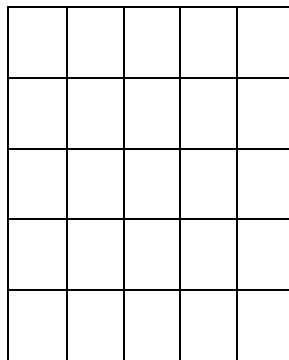
Stop agus réitigh

Spás clóis a dhearadh

- Tá achar clóis atá 25 méadar cearnach (m^2) ag an rang le bheith ag súgradh ann le linn am sosa.
- Ní mór an t-achar 25 méadar cearnach a roinnt ionas go mbeidh a spás féin ag gach grúpa le bheith ag súgradh ann. Tá 5 ghrúpa ann, agus faigheann gach grúpa 5 chearnóg le bheith ag súgradh ann, ní mór go mbeadh gach ceann de na 5 chearnóg sin ceangailte le chéile. Cad iad na bealaí éagsúla inar féidir libh an clós a roinnt? Úsáidigí an spás thíos chun dearáí éagsúla don chlós a chruthú; seasann gach bosca le haghaidh $1m^2$. Úsáidigí dathanna difriúla chun limistéar a scáthú le haghaidh gach grúpa. Cé mhéad leagan amach éagsúil ar féidir libh a dhéanamh? Úsáidigí níos mó páipéir más gá. An féidir libh na leaganacha amach uile is indéanta a aimsiú? Cén chaoi a bhfuil a fhios agaibh go bhfuil na leaganacha amach uile is indéanta aimsithe agaibh?



Sampla:





Foinse na híomhá: SFGM, Gluais go maith, gluais go minic

Trealamh spraoi don chlós

Tá sibh i gceannas ar an trealamh le haghaidh cluichí clóis don rang. Tá cúig ghrúpa sa rang. Ní mór cluiche clóis amháin a thabhairt do gach grúpa le haghaidh gach lae. Ní mór an trealamh a ní agus a chur as an mbealach gach lá i ndiaidh am sosa.

Liathróid pheile phlaisteach	Liathróid chispheile rubair	Liathróidí leadóige
Rópaí scipeála	Pónaireáin éadaigh	Friosbaí plaisteach
Fonsaí	Sleánna cúir	

Roghnaíghí roinnt trealamh le haghaidh cluichí ón liosta thuas a mbeidh na grúpaí in ann súgradh leis ar an gclós. Cén trealamh nach mbeadh oiriúnach? Cén fáth? (Smaoiníghí ar ábhair, spás sa chlós, sábháilteacht). Breacaigh síos na smaointe agus déanaighí iad a phlé i mbeirteanna.

Cruthaighí amchlár seachtainiúil ionas go mbeidh a fhios ag gach rang an trealamh a úsáidfidh siad ar an lá sin. Cuimhnighí:

- Ba cheart go bhfaigheadh gach grúpa cluiche nua gach lá!
- Caithfear a bheith in ann an trealamh a úsáidtear a ní!

Gníomhaíochtaí cruthaitheacha/Neamhiata

Déanaigí bhur n-ealaín mhatamaitice féin le daoine agus iad i mbun scaradh sóisialta.

a) Roinn do rang ina cheithre ghrúpa ag tabhairt uimhir idir 1 agus 4 do gach duine.

E.g. 1,2,3,4,1,2,3,4,1,2,3.....

Seasann an uimhir don rialail a bhaineann leis an duine sin:

Uimhir a 1: Seasai gí cosúil le rialóir

Uimhir a 2: Seasai gí cosúil le réalta

Uimhir a 3: * Cruthaigí bhur gcruth féin*

Uimhir a 4: * Cruthaigí bhur gcruth féin*

Seasann an grúpa i bpatrún leantach ansin, ag cinntiú go bhfuil siad ag achar sóisialta óna chéile

b) Athchóirígí an patrún agus cruthaigí saothar ealaíne matamaitice eile le daoine.

c) Tarraingígí íomhá nó scríobhaigí siombailí síos chun an saothar ealaíne matamaitice le daoine is fearr libh a chruthú.



d) Athraigí na rialacha agus cruthaigí níos mó ealaíne.

Smaoineamh agus plé

Féachaigí ar an íomhá thíos. Cad a cheapann sibh? An mbeadh an freagra céanna ag gach duine? Cén fáth?



Cé mhéad achainí atá fágtha?

Foinse na híomhá: Pacáiste Acmhainní de chuid 'Maths Eyes'. www.haveyougotmathseyes.com

Ar ais sa seomra ranga: Gníomhaíochtaí leantacha

- Comhthiomsú sonraí an ranga iomláin ó imscrúduithe, cuir i gcás, tomhas airde an chrainn, etc.

- Plé leis an rang iomlán ina ndírítear ar bhreathnóireachtaí agus na sonraí a taifeadadh ag gach pointe staid
- Gníomhaíochtaí machnamhacha i ndialann mar fhreagairt ar obair riain ETIEM
- Quiz Kahoot a chruthú dá gcomhscoláirí bunaithe ar a rian féin