ROLL THE DICE!

Teaching notes

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INTRODUCTION TO THE TEACHING NOTES

The Teaching Notes for this unit are a bit like their author: they say too much. I have tried to explain as much as possible all the activities and to offer samples of language that could be used. Some people may find that they are not very visual (there is too much text) and that there's too much information: they are right. I am afraid these Teaching Notes are the ones that suit my way of teaching better: I like to get things clear, even if I am a bit redundant. Hope they come to be useful, even to those who prefer more succinct proposals.

Whenever you find this symbol in the teaching notes, it indicates that a dialogue with the pupils may be started on which language they may need to carry out the activity. You can have a brainstorming, and it's advisable to focus on the most useful language and write it on the board, so pupils can use it along the activity. Even if they are using Catalan, you can translate it into English for them to use it.

You will also find some examples of language to use in class with pupils in order to elicit some information from them or guide the class dialogue and learners' thinking to a specific point of interest.

An assessment section appears in the Teaching Notes, although no assessment grid has been included, since I think that such tools are usually very personal and teachers tend to choose the assessing items that better suit our own contexts. Therefore, I have provided the assessment criteria related to the aims in the lesson plans and I have recommended some assessment tools, but I have not gone further. That is a task I leave to any teacher using the unit!

LESSON 1 (one hour). INTRODUCTION
This lesson is an introduction to the unit and the topic.

TEACHING-LEARNING ACTIVITIES

1. The teacher brings a <u>crystal ball</u> to the classroom and starts a <u>dialogue</u> with the pupils. Possible questions:
   a. What's this?
   b. What do you think it's for?
2. Pupils <u>watch</u> a fragment of Harry Potter and the Prisoner of Azkaban which shows a Divination Lesson (2.25 min)
   <u>http://www.youtube.com/watch?v=NdLa9yYt_jw</u> (no subtitles available)
3. Again, teacher starts the <u>dialogue</u>, and asks questions such as the following may be used:
   a. What are they doing?
   b. Do you think it works?
   c. Do you know other things used for the same purpose?
   d. Do you think we can predict future?
4. In pairs, pupils are asked to <u>make a list</u> of things we can predict and another one of things we cannot predict. Since it's the first lesson on the topic, not much justification of the answer and using of FL should be expected. Use of bilingual dictionaries is advisable.
5. Without asking for many justifications, a <u>general list</u> is built from data from all of the pairs.
6. Show the Notebook presentation "<u>What will happen</u>?"
   a. To answer the questions in the presentation, pupils work in pairs. They tick their answers on <u>worksheet 1</u>and write the number of their choice in a small whiteboard. Every time an answer is demanded, each pair should show their whiteboards. Two pupils are asked to collect the answers from their classmates in a <u>grid (worksheet 2)</u>.
7. During activity 6, some vocabulary related to probability may have appeared. Teacher will try to elicit it and start filling in a <u>circle map</u> (Notebook *Probability circle map*). The idea is to continue filling it in along the unit, with the new knowledge acquired.
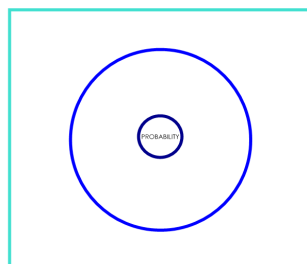
8. Being the first session of the unit, if the self assessment booklet has not been used, yet, it should be introduced and started to be filled in.

RESOURCES	LANGUAGE FOR (SCAFFOLDING PUPILS)
ACT1: a crystal ball ACT2: smartboard or similar device to watch the fragment of the film ACT4: Wwhat can we predict? Worksheet and bilingual dictionaries. ACT6: Notebook presentation *What will happen?* +Worksheets 1 and 2 ACT7: Notebook presentation *Probability circle map.*	**Making the list of predictable/unpredictable:** We can predict … We cannot predict … I agree I don't agree What else? How do you say…in English? What does … mean?

	LANGUAGE THROUGH LEARNING
LANGUAGE OF LEARNING	Use of bilingual dictionaries is expected during the lessons, since pupils have to come with an open list of items. Feedback from teacher when asked in English should also be provided.
Use of the simple future to express a hypothesis or a prediction. Vocabulary: predict, event, impossible, certain.	

ASSESSMENT
Monitoring oral interactions when working in pairs. Checking use of English. Since it's the first lesson on the topic, not much justification on the answer and using of FL should be expected. Participation in the class. Answers from the worksheets. Self-assessment.

EXTENSION/REINFORCEMENT ACTIVITIES - VARIATIONS
V: Language monitors may move around the class to check if FL is used, giving "warnings" to the groups using too much L1. **R:** Children with more difficulties to understand oral English may be provided with the transcript of the fragment to be watched. **E:** Pupils may be given a gap fill version of the transcript and be asked to complete it by watching the fragment again

LESSON 2 (one hour). MAKING HYPOTHESES
This lesson introduces hypothesising and the comparison between predictions and experiential results.

TEACHING-LEARNING ACTIVITIES

1. A short <u>review</u> of the introductory session will be done. Elicit ideas such as predicting, making hypotheses and the language needed for it.
2. <u>Present</u> the activity using Notebook presentation *Hypothesising*. Ask pupils to make hypotheses, in pairs, about the initial experiment, which is rolling 100 dice and predicting how many even numbers will be obtained. Allow 5 minutes to write down their choice in a small piece of paper (<u>worksheet 3</u>), including their bet from 10 points. Collect them and do the experiment.
3. The <u>experiment</u>: roll 100 dice and separate even and odd numbers. Display the dice separately, in the shape of a bar graph. Compare their predictions with the result of the experiment.
4. Divide pupils in 5 cooperative groups. Each group will work with different materials: dice, coins (from an English speaking country, if possible), coloured balls, spinners and playing cards. Present the <u>small experiments</u> pupils are going to perform using Notebook presentation *Hypothesising*. Make them think how they are going to do the experiments, that they need to organise themselves and the data they will obtain. Give them their roles in the group, the material needed for the experiment and the worksheets 4-A, 4-B, 4-C, 4-D and 4-E to collect their data. Allow 25-30 minutes for the whole process. From the experiments, they should discuss the relationship between the number of repetitions and the information provided by them. Further discussion will take place when they know how to calculate probability for the events experimented. They should compare their predictions with the results and gather their information on the worksheets provided and in the Notebook presentation *Hypothesising*, including the final statement: we were right/we were wrong.
5. <u>Compare results</u> from all groups and review the <u>Probability Circle Map</u> and add information, if possible.

RESOURCES	LANGUAGE FOR (SCAFFOLDING PUPILS)
ACT2: Notebook presentation *Hypothesising*.+ Worksheet 3 ACT3: 100 dice ACT 4: Notebook presentation *Hypothesising*+ worksheets 4-A, 4-B, 4-C, 4-D and 4-E+ dice + coins+ playing cards + coloured balls + spinners ACT5: Notebook presentation *Hypothesising*.+ Notebook presentation *Probability Circle Map*	**Making hypotheses:** Our hypothesis is that if we… we will… Because there are…./there is… We are very sure. We are not very sure. We bet … points. **Group working:** Who starts? It's my turn. Write down; Can you repeat, please?; Wait a second. Can I…? Don't shout; keep your voice down; speak English What do you think? I think… I agree; I don't agree; me too; Good idea!

	LANGUAGE THROUGH LEARNING
LANGUAGE OF LEARNING	During group work, interaction among pupils may arise some expressions which should be considered for future group activities. Feedback from teacher when asked in English should be provided.
Use of the simple future to express an hypothesis or a prediction. Vocabulary: hypothesis, rolling a dice, tossing a coin, spinning a spinner, picking a ball, picking a card.	

ASSESSMENT
Monitoring oral interactions when: working in pairs and groups. Checking use of English. Participation in the class and in the group work. Group-assessment. Answers from the worksheets. Self-assessment.

EXTENSION/REINFORCEMENT ACTIVITIES - VARIATIONS
V: Language monitors may move around the class to check if FL is used, giving "warnings" to the groups using too much L1. **E**: If some groups finish earlier than others, they can repeat the experiment more times to discuss the change of results with the increment of repetitions.

UNIT 2
LESSON 3 (one hour). UNCOVERING PROBABILITY
This lesson introduces the formula to calculate probability.

TEACHING-LEARNING ACTIVITIES

1. Class watch a fragment of <u>Charlie and the Chocolate factory</u> in which Mike Teavee explains how he calculate the probability of finding the Golden Ticket. Ask pupils if they would have done the same, or how would they have calculated it.
2. <u>Review</u> the results of the previous lesson: teacher and pupils look at their hypotheses and their results. Teacher explains probability can help calculating real, predictable and measurable conclusions about random events.
3. A <u>PowerPoint presentation</u> (*Probability Calculation*) is used to introduce the calculation of probability. While doing the presentation, pupils should be asked to predict answers and calculations.
4. Divide the class in groups of 4 to make an activity to <u>check understanding</u> of ACT2. Explain the activity and give each group a set of statements they have to fill in with the words missing and put in order (there are three different versions of them, worksheets 5-A, 5-B, 5-C). Give one of the members of the group (the one with lower abilities, if possible) a list of words that may be used to fill in the gaps (worksheet 5-WORDS). When finished, one member of each group (selected by their peers) goes around the classroom to see if the other groups have any problem with the words they do have in the text. Ask pupils to glue their pieces on a sheet of paper. Allow 10-15 min.
5. <u>Check</u> the results all together with the PowerPoint presentation *Probability Calculation*.
6. In three big groups, pupils are asked to <u>practise probability</u> with dice(D), spinners and coins(S) or cards (C): dice, spinners and coins are provided for pupils to use them to calculate a set of probabilities. They can help each other, but everybody has to write down the answers to the set of questions asked in <u>worksheets 6-A, 6-B or 6-C</u>. Allow 10-15 min.
7. Divide the class in groups of three, with one member of each of the three big groups (D+S+C) and give each pupil a copy of worksheet 7. They have to fill it in sharing the information they have from the previous groups. Allow 10 min. maximum.
8. <u>Check</u> the answers together.
9. Add any new relevant information to the *Probability Circle Map*.

RESOURCES	LANGUAGE FOR SCAFFOLDING: PUPILS
ACT1: TV or similar device to watch fragment of film + Charlie and the chocolate factory fragment: Mike TV explaining how to calculate the probability of finding a golden ticket ACT3: PowerPoint presentation *Probability Calculation* + device to show it ACT4: Worksheets 5-A, 5-B and 5-C+scissors + glue ACT5: PowerPoint presentation *Probability Calculation* + device to show it ACT6: Dice, spinners, cards and coins + worksheets 6-A, 6-B and 6-C ACT7: Worksheet7 ACT9: Notebook *Probability Circle Map*	**Practising with materials:** How do you say…? How many…? What does… mean? Can you help me? Coins: heads, tails Cards: hearts, spades, diamonds, clubs Spinners; Dice **Working in groups to share info:** What's your answer for number 1? What have you got in number 1? Do you know number 1? **Language for ordering:** first comes, then, after… 1st, 2nd, 3rd, 4th…

	LANGUAGE THROUGH LEARNING
LANGUAGE OF LEARNING	Feedback from teacher when asked in English should also be provided. Language for asking for help may arise during the practice with materials; it should be considered for future sessions.
Probability calculation vocabulary: fraction, numerator, denominator, favourable outcomes, possible outcomes, 1 in 6, 1 over 6, 1 out of 6	

ASSESSMENT
Monitoring oral interactions when: working in big groups and smaller groups. Checking use of English. Participation in the class. Answers from the worksheets. Self-assessment and group assessment.

EXTENSION/REINFORCEMENT ACTIVITIES - VARIATIONS
V: Language monitors may move around the class to check if FL is used, giving "warnings" to the groups using too much L1. **E:** pupils who finish ACT6 earlier than the rest, can select other materials to practise with.

UNIT 2
LESSON 4 (one hour). PROBABILITY SCALE
This lesson introduces the idea of a continuum in probability and the use of specific probability-related vocabulary.

TEACHING-LEARNING ACTIVITIES
1. <u>Review</u> the content learnt up until now by a short oral elicitation from the teacher.

1. <u>Review</u> the content learnt up until now by a short oral elicitation from the teacher.
2. Pupils will work in pairs, sharing a computer, which needs internet connection. Show them where they can find the document they have to work with: *Work with ICT (worksheet 8)*. Explain the parts of the document and the process they have to follow: read the questions, read the texts to answer them and play the games provided. Remind them to save the document with their names. Set the pairs to work. Go around the classroom helping pupils and monitoring their interactions.
3. When finished, pupils <u>print</u> one of the web pages they have been working with and save their document.
4. With the whole class, a <u>probability scale</u> hung from a washing line is created: 5 fixed elements are hung (impossible, not likely/unlikely, even chance, likely/very likely and certain events). With the same pairs, pupils are asked to write an event to be placed in the probability scale. To write them, use the cards with the likelihood at the back. Hang their cards from the washing line and discuss their statements (teacher can ask pupils if they agree, it they would change or add anything and to positively critique others' work).
5. With the whole class, try to add all new information in the *Probability Circle Map*.

RESOURCES	LANGUAGE FOR SCAFFOLDING: PUPILS
ACT2: computers (1 for each 2 students) + *worksheet 8* ACT3: printer ACT4: cards expressing likelihood (5 pages of a word document): *certain event cards, likely event cards, even chance cards, unlikely event cards, impossible event cards*)+ *probability scale cards + rope + pegs*	**Working in pairs:** It's my turn, let me write, I don't know, Can you write this? Can you see? **Working on the computers:** Switch it on/off the laptop; open; close; save; click; folder; file; name; **Statements on the washing line:** Use of future: It will…, I will…, we will… Get examples from likelihood statements on the board. They will also have some in the web pages they have been working with.

	LANGUAGE THROUGH LEARNING
LANGUAGE OF LEARNING	Feedback from teacher when asked in English should be provided. Language for asking for help may arise during the work with the laptops, specially related to the software and the web pages; it should be considered for future sessions. During ACT4, we can expect pupils to need lots of scaffolding to write their statements for the washing line, but some language may "escape" from the planned scaffold: be prepared to deal with pupils "dynamic" language needs.
Likelihood vocabulary: impossible, unlikely, not likely, even chance, likely, very likely, certain events. Fractions, decimals and percentages (percent).	

ASSESSMENT
Monitoring oral interactions when: working in pairs. Checking use of English. Participation in the class. Answers from the printed quiz (numerical outcome) and the Probability scale document. Self-assessment and pair assessment.

EXTENSION/REINFORCEMENT ACTIVITIES - VARIATIONS
E/R: Pupils can play with the *Probability Die*: a person roll a die and has to say a statement true for the word on the die (impossible, certain, even chance, not likely, very likely, you choose). If they get it right, one point; if not, it's next person's turn. **E/R:** Game to practise probability scale: the teacher says a probability (in any of the three forms) and pupils show with actions what it means: • certain, raise both arms above your head • likely but not certain, hold your ears • even chance, bow • unlikely but possible, fold your arms • impossible, sit down

LESSON 5 (two sessions of one hour each) A SNAIL RACE
This lesson is based on a game and the subsequent reflection on its results. The
game is a variation of the activity "Greyhound race" by Proyecto Sur
http://www.proyectosur.com/

TEACHING-LEARNING ACTIVITIES

SESSION 1: A SNAIL RACE
1. Introduction of the game: A SNAIL RACE. Teacher explains they are going to play a
    game in which probability plays an important role.
2. The class is divided in groups to play with the two boards (2-12 players for board 1-
    players A- and 2-12 players for board 2 – players B-) with the idea that in the future they
    will have to swap places. Therefore, we will have pupils simultaneously playing with
    board 1 and board 2.
3. When children have the boards, instructions are orally explained (they are also written
    on the boards) ⊞Comprehension needs to be checked.
    a. Instructions:
    b. ***Board 1****:* *the board represents a snail race track with 12 lanes. The game can be*
        played by 2-12 players: each of them chooses one lane and their counter stands
        at the start. Two dice are rolled and the numbers obtained are added. The
        counter which is standing on the lane with the number obtained moves one
        square forward. The winner is the player who first gets to the finish line.
    c. ***Board 2****:* *this game is a variation of the previous one. Instead of adding the results*
        of rolling the two dice, they are subtracted. Therefore, only numbers from 0 to 6
        appear on the lanes and only 2-6 players can play this game. As above, the two
        dice are rolled, the results are subtracted and the counter on the appropriate
        lane moves one square forward. The counter that gets to the finish line first wins.
4. Before playing, <u>vocabulary</u> related to playing a game is orally <u>reviewed</u>. Teacher
    reminds pupils they have to choose one lane and explain their reasons for their choice
    (if two pupils want the same number, the younger one chooses).
5. Teacher gives out 2 dice per group and the counters needed. Children <u>start to play</u>.
    Allow 15—20 minutes.
6. <u>Stop the games</u> and give 5 minutes for the players to <u>talk</u> about the results and try to
    find a pattern. Some useful questions may be (found at <u>worksheet 9-A</u>):
    a. Which number was the winner? Why?
    b. Which number was the slowest? Why?
    c. Was there an "always loser" lane? Why?
7. Pupils have to make up a <u>piece of advice </u>for someone who has not played their game
    (pupils A for pupils B and vice versa): some examples are given and they have to find a
    partner whom to orally (and in secret) give the piece of advice. They can use a small
    note with some useful language (<u>worksheet 9-B</u>).
8. New groups are set (players A now play with board 2 and players B with board 1).
⊞ Rules are reviewed. Pupils <u>play again</u>. Allow 10-15 minutes.
Repeat <u>step 6</u>. In their previous pairs, pupils discuss the results and fill in <u>worksheet 9-C</u>.

TEACHING-LEARNING ACTIVITIES

SESSION 2: 2 DICE DATA

1. Pupils are asked to sit in <u>pairs</u> by the person with whom they filled in <u>worksheet 9-C</u>.
2. A little <u>review</u> on the previous session is carried out: teacher elicits from pupils the activities they did, the results they obtain and the reasons why they think the game went like it did. The <u>conclusions</u> of the different pairs are already written down in a <u>cooperative document</u> (on the smartboard). ▦ This document has been started after collecting the works from the pupils in the previous session.
3. Teacher explains they are going to analyse the results from the previous day, using probability calculation. Questions:
   a. What probability are they going to calculate?
   b. What events are they going to study?
   c. What formula are they going to use?
   d. What are the number of possible outcomes?
   e. What are the number of ways the event can happen?
   f. Is there any way they can organise the results? Maybe using a drawing, or a chart? Introduce Cartesian coordinates to organise data.
4. Discussion conclusions are also collected and Cartesian coordinates are shown (without the numbers):

DIE 1							
6							
5							
4							
3							
2							
1							
+	1	2	3	4	5	6	DIE 2

DIE 1							
6							
5							
4							
3							
2							
1							
-	1	2	3	4	5	6	DIE 2

5. Pupils are given both grids to fill in <u>groups of 4-5</u>: they are asked to <u>find patterns</u>, they can use colours to highlight. They have to discuss and answer the questions. Allow 15-20 minutes. Use <u>worksheet 10</u>.

DIE 1							
6	7	8	9	10	11	12	
5	6	7	8	9	10	11	
4	5	6	7	8	9	10	
3	4	5	6	7	8	9	
2	3	4	5	6	7	8	
1	2	3	4	5	6	7	
+	1	2	3	4	5	6	DIE 2

DIE 1							
6	5	4	3	2	1	0	
5	4	3	2	1	0	1	
4	3	2	1	0	1	2	
3	2	1	0	1	2	3	
2	1	0	1	2	3	4	
1	0	1	2	3	4	5	
-	1	2	3	4	5	6	DIE 2

6. Once the grids are completed, each group has to <u>answer a set of questions</u> (every group will have different ones-<u>worksheet 11</u>). Allow 5 minutes. When finished, each group <u>presents</u> their <u>questions</u> and their <u>answers</u>, which will be collected in the cooperative document from the beginning of the session.
7. <u>Main conclusions</u> are highlighted by the teacher, elicited from pupils or from the text.

RESOURCES	LANGUAGE FOR SCAFFOLDING: PUPILS
S1/ACT 1-8: Laminated copies of the board games + counters + dice Worksheets 9-A and 9-B S/1ACT 9: worksheet 9-C S2/ACT 5: worksheet 10 S2/ACT 6: worksheet 11	**Playing:** • It's my/your turn. • Roll the dice. • Move forward. • Move backwards; don't cheat; you cheated! **Choosing/explaining reasons:** • I chose … because … 　　o It's my favourite number 　　o I like it 　　o It's got a high probability **Asking and answering questions:** • Which number was the winner? Why? • Which number was the slowest? • Was there an "always loser" lane? Why? **Giving advice:** • You should choose... because… 　　o X always wins 　　o X never looses 　　o X is the best 　　o X appears lots of times 　　o X has got a high probability 　　o X's probability is very high

LANGUAGE OF LEARNING
Vocabulary for operations: addition, subtraction, add, plus, minus, take away, equals. Vocabulary related to probability: event, probability, impossible, possible, more probable, less probable, high probability, low probability

LANGUAGE THROUGH LEARNING
Some extra language not provided by the planned scaffolding may be needed to write the pieces of advice, and also when justifying the lane choice.

ASSESSMENT
Monitoring oral interactions when: playing and talking about the results, giving piece of advice. Checking use of English and specially vocabulary related to the topic: high/low probability, probability, unlikely. Answers from the worksheets. Self-assessment.

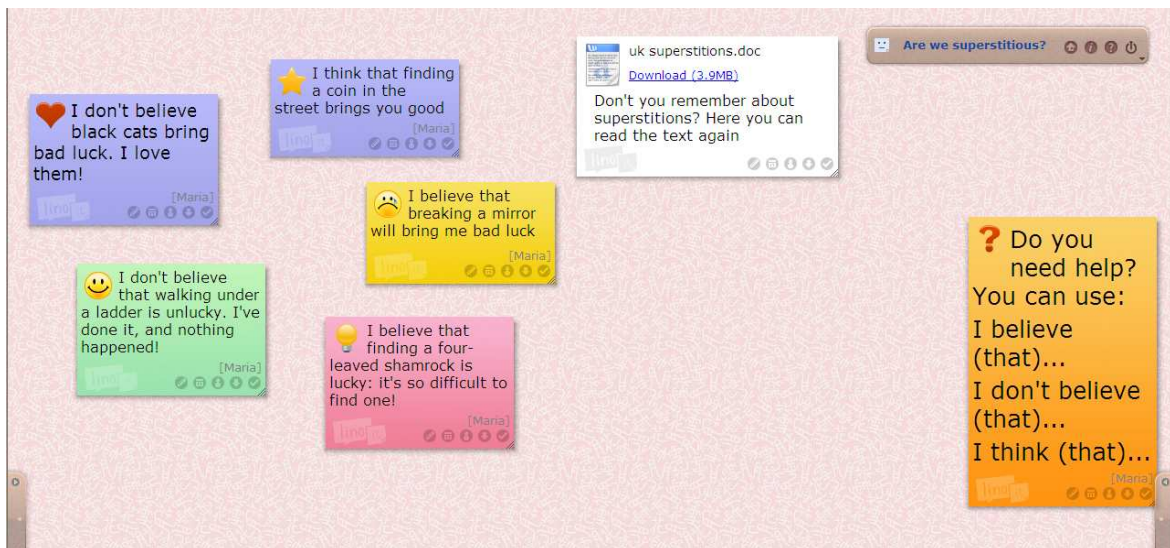| EXTENSION/REINFORCEMENT ACTIVITIES - VARIATIONS |
|---|
| **V**: Language monitors may move around the games to check if FL is used, giving "warnings" to the groups using too much L1.
E: Solving the enigma "The two kings" (supplementary materials)
E: Solving the enigma "The two friends" (supplementary materials) |

UNIT 3
LESSON 6 (one hour). SUPERSTITIONS IN UK
This lesson is based on a text about superstitions in UK and seeks the comparison with pupils' ones. This lesson may be skipped if cannot be linked with the previous one.

TEACHING-LEARNING ACTIVITIES

1. <u>Discuss</u> about the reasons why they chose the number lane in the snail race activity. Hopefully, and if not, teacher should elicit it, somebody will come with the idea of "a lucky number". That should be use to introduce the topic and the activity.
2. Divide pupils in two groups: one gets the <u>text</u> *Things that bring you good luck in the UK* and the other *Things that bring you bad luck in the UK* (each child gets a copy of the text: <u>worksheets 12-A and 12-B</u>). After reading individually, they check understanding with a partner. Remind them they don't need to understand every word.
3. Divide each group in smaller groups of 3 children. Each pupil gets two <u>grids</u> (<u>worksheets 12-C and 12-D</u>). They discuss and fill in one of the grids (the one they have the information for). Then, form pairs: one pupil with a completed good luck grid and the other with a completed bad luck grid. Without showing their grid, they have to get all the information from the other person, by providing information and <u>asking questions</u>.
4. Their filled in grids are displayed in the class for some days, so their work is <u>shared</u>.
5. <u>Discuss</u> the answers with the whole class.
6. Pupils are asked to <u>post their opinion</u> about superstitions (provide them with some examples e.g. I don't believe black cats bring bad luck, because they are lovely!) in a *lino it* canvas (or a *wallwisher* wall) by working with the same pairs of the previous activity and a laptop.

RESOURCES	LANGUAGE FOR SCAFFOLDING: PUPILS
ACT2: *worsheets 12-A and 12-B.* ACT3: previous sheets + worksheets 12-C and 12-D. ACT5: lino it application (account required) + PC	**Texts**: There may be new words in the texts, but visual aid is provided for the most difficult ones. **Working in pairs/groups:** Do you know…? What brings good/bad luck in the UK/in Catalonia? In the UK…., in Catalonia… It's the same/It's different/It's not the same Do you believe it? I believe it/I don't believe it. What about in the UK/in Catalonia? **Statements on superstitions:** Three or four examples or statements about superstitions should be provided as a guide for ACT5.

	LANGUAGE THROUGH LEARNING
LANGUAGE OF LEARNING	Language not previously planned may be needed to write the statements about superstitions in ACT5. The use of bilingual dictionaries and feedback from the teacher will be required.
Good luck, bad luck, lucky, unlucky It's lucky/unlucky It brings you good/bad luck	

ASSESSMENT
Monitoring oral interactions when: working in pairs and in small groups. Checking use of English. Participation in the class. Observation of the grids filled in and the statements about superstitions. Self-assessment and pair assessment.

EXTENSION/REINFORCEMENT ACTIVITIES - VARIATIONS
E/R: a quiz at http://kids.nationalgeographic.com/kids/games/puzzlesquizzes/quizyournoodle-superstitions/ . **E:** For fast-finishers, a puzzle from clovers may be made on-line at http://kids.nationalgeographic.com/kids/games/puzzlesquizzes/clover-puzzler/ **E/R:** Related to one of the superstitions worked on the text, pupils can learn the British rhyme for magpies: One for sorrow, Two for joy, Three for a girl, Four for a boy, Five for silver, Six for gold, Seven for a secret never to be told.

UNIT 3
LESSON 7 (one hour). LET'S CHEAT A BIT!
This lesson introduces non-equally probable results from dice, spinners or similar objects.

TEACHING-LEARNING ACTIVITIES

1. Tell pupils they have some <u>crafts</u> to do. Divide them in groups of four and number the members of the group from 1 to 4. Let pupils know that there are no roles in the group, but everyone can be asked to talk, so they have to understand everything they're doing (Numbered Heads Together technique). Give each group a set of strips of paper with some instructions written on them (<u>worksheet 13-A</u>). Ask them to put them in order. When all members of a group stand up, check their order, help them if needed and give them one photocopy per group of the correct order for them to check (<u>worksheet 13-B</u>). Provide each member of the group with *A special die worksheet* and a copy of the die to build (worksheets 13-C and 13-D). Ask them to follow the instructions and do the activity. Allow 20 min for ACT1 and 2.
2. <u>Discuss</u> with the whole class about loaded dice and biased probability… Elicit or provide examples of "cheating" dice, coins or spinners (with non equally probable outcomes: dice with two 2, two 3 and two 4, spinners with 3 sections of one colour and just 1 with another one…).
3. In the same groups as in ACT2, pupils <u>build</u> their own "cheating" material: in the group they decide what they will make (all the same, so have to come to an agreement). Allow 15 min to make them.
4. As from all groups come together and <u>play</u> with their materials. So do Bs, Cs and Ds.
5. Go to *Probability Circle Map* and see if something can be added.

RESOURCES	LANGUAGE FOR (SCAFFOLDING PUPILS)
ACT1: *worksheets 13-A and 13-B* + paper and something to write+ *worksheet 13-C and 13-D* for all students + scissors +glue ACT4: templates of spinners and dice + glue+ colours+ scissors. ACT6: *Probability Circle Map* + pc	**Making hypotheses and contrasting them:** Our hypothesis is that if we… we will… Because there are…./there is… Our hypothesis was correct/wrong because the results are the same as/different from our predictions. **Group working:** Who starts? It's my turn/Go/Run Write down; Can you repeat, please?; Wait a second. Can I…? Let's…! Don't shout; Keep your voice down; Speak English What do you think? I think… I agree; I don't agree; Me too; Good idea!

	LANGUAGE THROUGH LEARNING
LANGUAGE OF LEARNING	During group work, interaction among pupils may arise some expressions which should be considered for future group activities. Feedback from teacher when asked in English should be provided.
Use of the simple future to express a hypothesis or a prediction. Vocabulary: hypothesis, roll a die, spin a spinner, toss a coin, section, equally probable, non equally probable, fair/unfair	

ASSESSMENT
Monitoring oral interactions when: working in groups. Checking use of English. Participation in the class and in the group work. Group-assessment. Answers from the worksheets. Self-assessment.

EXTENSION/REINFORCEMENT ACTIVITIES - VARIATIONS
E/R: activities from the bank of extra activities may be chosen, depending on the needs.

LESSON 8 (one or two sessions: the practical work can be sent as homework and discuss the results in a further session) PREDICTING FROM STATISTICS
In this lesson, pupils have to make a prediction about themselves based on statistics.

TEACHING-LEARNING ACTIVITIES

1. Use the Notebook *Predictions from statistics* to <u>introduce</u> the lesson's topic and activity

Conduct the presentation and dialogue to make pupils aware that there are events we cannot predict using the probability formula, but using statistics to observe patterns.

2. At the end of the presentation, the steps to carry out the <u>activity</u> are shown:

> **YOUR STATISTICS AND PREDICTIONS**
>
> Let's repeat. Let's work. We'll do it in pairs:
> 1. Choose which probability you want to calculate. It has to be something you can count. Write the question you want to answer: What's the probability of .... if/when we.....?
>   One pair=the same statistics
>   Only one question, but two different answers.
> 2. Decide how you will make it:
>   a. what will you need?
>   b. where will you do it?
>   c. how many times will you repeat (remember that more repetitions, means better results, but you cannot do it 1,000 times, ok?)?
>   d. how will you collect data?
>   e. how will you present your conclusions?
> 3. At the end, you can write your probabilities/predictions in a linoit canvas.

And an example is provided:

> **AN EXAMPLE**
>
> 1. I want to calculate how good I am at throwing a small ball into the bin.
> Question: what's the probability of the ball getting in the bin when I throw it?
> 2. I will:
>   a. need a bin, a small ball, pencil and paper
>   b. do it in the class
>   c. repeat it 100
>   d. tally the times the ball gets in the bin
>   e. draw a bar chart
> 3. At the end, I can answer the question and I will write: The probability of the ball getting in the bin when I throw it is 7/10 (or 0.7 or 70%).
> So, I'm quite good at it!

Allow the rest of the session to work on the activity and a further session (or homework) if needed. Use <u>worksheet 14</u>.

3. When pupils finish the activity, the final result, an individual prediction for each of them, is <u>displayed</u>, either in the form of a linoit canvas (printed or not) or a poster with real post-its on it (one prediction=1 post-it).
4. The word "statistics" and maybe "pattern" should be added to the *Probability Circle Map*.

RESOURCES	LANGUAGE FOR SCAFFOLDING: PUPILS
ACT1: Notebook *Predictions from statistics*+ smart board or alternative ACT2: materials required for the groups for their "experiment" + materials to collect data + *worksheet 14* ACT3: post-its or linoit canvas (available at http://en.linoit.com/ , creating an account required)/pc.	**Making predictions:** What's the probability of …. when/if I(or we)… The probability of … when/if I (or we) is… Possible outcome verbs: scoring, getting, lasting, being on target, guessing **Collecting data:** Wait; ready; start; go; stop; repeat it; write down; numbers (for some pupils)
LANGUAGE OF LEARNING	LANGUAGE THROUGH LEARNING
Language of hypothesis/predictions: will + if/when	Language for asking for help may arise during work in pairs. Feedback from teacher when asked in English should be provided. During ACT2, we can expect pupils to need some scaffolding to write their statements for their predictions, but some language may "escape" from the planned scaffold: be prepared to deal with pupils "dynamic" language needs. Use of bilingual dictionaries.

ASSESSMENT
Monitoring oral interactions when pupils work on ACT2   Checking use of English and specially the use of future when making predictions.   Final statements on their predictions.   Self-assessment and pair-assessment.

EXTENSION/REINFORCEMENT ACTIVITIES - VARIATIONS
V: to avoid competition, when the group nature is highly competitive, at the end of the activity an award may be given to the most original, funniest or silliest prediction. Therefore, pupils won't look at high marks, but to the content of the prediction itself.

UNIT 4
LESSON 9 (3-4 sessions of an hour). BOARD GAMES
This lesson starts with Snakes and Ladders, and gets pupils to play with and discover different board games. It also asks them to create their own as a final activity in the unit.

TEACHING-LEARNING ACTIVITIES

SESSION 1

1. Teacher should make clear the link between random and probability and most of the board games pupils may now e.g. make a list of games where a dice is used.
2. Present an image of the game Snakes and Ladders. Ask some questions:
   - What's its name?
   - How do you play it?
   - Where does it come from? Where is it played?
3. Introduce the activity: a running dictation of the missing words from the cloze text *Hindu Snakes and Ladders*. Pupils will be divided in pairs: they are given a copy of the text and read it together (worksheet 15-A). If they want to, they can try and fill in the gaps. One of the members of the pair is the runner and the other one the writer (they can swap places during the activity). The runner should read one of the words hanging from the walls in the class and dictate it to the writer (the words to be displayed are the ones at worksheet 15-B). They can only read one word at a time. At the end, they will have 10 words and only seven gaps to be filled. Both pupils in the pair need to fill in the gaps in their texts. Correct the texts altogether, using a projection of the text. Allow 10 min.
4. Use a modified version of the PowerPoint presentation Hinduism by Juliet Davies (http://www.tes.co.uk/teaching-resource/Hinduism-introduction-gods-and-moksha-6072249/) to explain more about the game; *Hinduism and snakes and ladders*. A list of good things and bad things should be made and displayed. It will be used in the next activity.
5. In groups of 4, pupils design their own snakes and ladders game, following some written instructions (worksheet 15-C): allow 30 min.
   1. The game will show the Hindu idea of good and bad.
   2. There must be an equal number of ladders and snakes.
   3. Write a good thing at the bottom square for each ladder.
   4. Write a bad thing at the top square for each snake.
   5. Write Moskha on the finish square.
   6. Remember to write the numbers on the squares.
7. When they finish, pupils use the check list in worksheet 16 to assess their game. All groups show their games to their classmates and they use the check list to assess each others' work. If there's no time, this can be done in the next session. It's important that the assessment is done in groups.

SESSION 2+3 (+4)

1. <u>Discuss</u> with pupils which board or similar games they know, games in which random acts play an important part: differentiate the ones that require some kind of skill or thinking and keep in the target list only the ones that rely on pure random acts. Tell them they're going to "study" different games and they have to find their characteristics or similarities and differences. This will be done with a cooperative display in which every group will have the information for one game.

2. Before studying the games, discuss which <u>features</u> will be studied (some possible aspects) which will be gathered in a check list (<u>worksheet 17</u>):
    a. Number of players
    b. What the board looks like, number of squares
    c. Counters
    d. Instructions
    e. What you need to do to win
    f. Can you cheat? Is it fair?

3. Divide pupils in groups of 4-5 and give each group a different <u>game</u> with the instructions. Allow them some time to answer the questions on the worksheet and play (10-15 min). Give them pieces of paper with an appropriate size to fit in the display (a grid to keep all the information, so looking at the similarities and differences will be easy).

4. <u>Discuss</u> with the whole group, using the display with their information, about similarities and differences and what makes a good game, what makes it fair, interesting, funny, boring…

5. Introduce the last activity to pupils: in groups, they have to <u>create a board game.</u> With the whole class, discuss and decide the characteristics they should take into account. This will restrict the list of features their game will need to have and which will be included in the check list:
    a. Is it fair? Can we use loaded dice?…
    b. Number of squares
    c. Aim of the game
    d. Dice/spinners/coins…
    e. Rules…

6. Divide pupils in groups of 4-5 (may be the same as in ACT3) and <u>get them to work</u> to design and create the board game. Encourage them to add things they have learnt (dice or spinners with non equal probable outcomes, special rules…) At the end, they will have to <u>present</u> it to their classmates and explain the process they have followed to create it.

7. When all games have been presented, ask pupils to <u>assess</u> the other groups' work, as well as theirs, using the check list created before.

8. Review the *Probability Circle Map* to help pupils be aware of everything they have learnt.

9. Ask pupils to <u>assess</u> their performance and interest during the unit and the unit itself, including the teacher's task: ask them to do it individually, but as for the unit, talk about what they have learnt, what they like the most or the least, which was their favourite activity and why.

RESOURCES	LANGUAGE FOR (SCAFFOLDING PUPILS)
Previous preparation: a set of words should be hanging from the walls for ACT3 (worksheet 15-B). S1/ACT2: An image of the game Snakes and Ladders. The modified PowerPoint presentation *Hinduism and snakes and ladders* provides some. S1/ACT3: A copy of *worksheet 15-A* for every student. Set of missing words to be hung on the walls: worksheet 15-B S1/ACT4: *Hinduism and snakes and ladders*+ pc S1/ACT5: Worksheet 15-C+ *sn-lad board* + S1/ACT6: Worksheet 16 ACT3: Board games to be "studied" + pre-cut pieces of paper ACT4: Appropriate space to display the comparison of games ACT6: Materials to create the board game. It's advisable to laminated once finished. ACT7: Board games check list (worksheet 17) ACT8: *Probability Circle Map*	**Group working:** Why don't we write/draw/use/colour/add…. Who starts? It's my turn. Write down; Can you repeat, please?; Wait a second. Can I…? Don't shout; keep your voice down; speak English **Playing:** It's my/your turn. Roll the dice. Move forward. Move backwards; don't cheat; you cheated! **Assessing peers' work:** What do you think? I think… I agree; I don't agree; me too; Good idea! I like it/It's original/I like the drawings, the colours, the sentences, the handwriting It follows the rules/the instructions It's got a tick/It hasn't got a tick **Good/bad things S1-ACT5:** Display the list created with the whole group. Provide some more examples: helping your parents, helping a friend, sharing games, respecting others/telling lies, swearing, being mean to friends

	LANGUAGE THROUGH LEARNING
LANGUAGE OF LEARNING	During group work, interaction among pupils may arise some expressions which should be considered for future group activities. During S2-ACT5 some language not planned may be needed to talk about good things and bad things. Feedback from teacher when asked in English should be provided.
All language worked during the whole unit Roll the Dice!	

ASSESSMENT
Monitoring oral interactions when: working in groups, whole group discussions Checking use of English. Participation in the class and in the group work. Group-assessment. Self-assessment. Peer assessment.

EXTENSION/REINFORCEMENT ACTIVITIES - VARIATIONS
V: Language monitors may move around the class to check if FL is used, giving "warnings" to the groups using too much L1. **V**: Instead of using Snake and ladders game to present board games, a game available at http://www.intermonoxfam.org/cms/HTML/espanol/2547/Superior_CAT.pdf could be used, to work some cultural aspects, also. **E/R**: A crossword (Notebook document) on probability may be solved as an assessment activity.