Teaching Guide					
Identifying Data					2021/22
Subject (*)	Mathematics and Games			Code	652G01031
Study programme	Grao en Educación Infantil				
Descriptors					
Cycle	Period	Year		Type	Credits
Graduate	2nd four-month period	Third		Optional	4.5
Language	SpanishGalicianEnglish				
Teaching method	Face-to-face				
Prerequisites					
Department	Pedagoxía e Didáctica				
Coordinador	Santamaría Recio, María Celina		E-mail	celina.santamaria@udc.es	
Lecturers	Santamaría Recio, María Celina		E-mail	celina.santamaria@udc.es	
Web					
General description	This subject will be taught in bilingual mode. The teaching and learning process will be carried out in two vehicular languages, English and Galician or Spanish, ensuring at all times that all students are able to follow the subject properly and have access to equivalent teaching materials in both languages. The use of two vehicular languages in this subject is proposed with the pedagogical principle of scaffolding for teaching methodologies in English of translanguaging or code switching, i.e. code switching. The teacher will be able to expand the use of English and reduce the use of Spanish/Galician progressively, the second he/she sees the students' capacity to adequately follow the subject in the foreign language. In classroom interaction, students will be encouraged to use the foreign language to the best of their ability. The students' linguistic competence in the foreign language will never be evaluated nor will it have any impact on the final grade achieved in the subject. In the evaluation, students may be evaluated in the vehicular language of their choice. We work collaboratively with games as a didactic resource for early childhood education, given their fundamental role in the lives of boys and girls, as well as working on emotions and using innovative resources.				

Contingency plan	1. Modifications to the contents No significant changes are made 2. Methodologies *Teaching methodologies that are maintained Expository lectures. Supervised assignments. Guided readings. *Teaching methodologies that are modified. Teaching through the Microsoft Teams platform will be incorporated. Oral presentations by students may be made by telematic means. Part of the tutored work foreseen to be done in teams will become individual. Peer evaluation is included as a pedagogical resource. The mixed test can be carried out by telematic means. 3. Mechanisms of personalized attention to students. Corporate mail -->Daily. UDC Moodle -->Twice a week. Microsoft Teams -->At the time scheduled for face-to-face sessions. 4. Modifications in the evaluation Tutored work 20 % Guided review of game theories (in team). Mentored work 15 % Guided design of two games (individual) Tutored work 15 % Guided didactic proposals (individual) Tutored work 15 % Multimedia document on the elaboration of a game (individual) Peer evaluation 5 % Guided evaluation of the previous documents (individual) Supervised work 10 % Guided grading of games (individual) Guided work 10 % Elaboration of dynamics in which emotional intelligence is related to mathematics (individual) Guided reading 10 % Guided reading 10 % Guided reading *Evaluation observations: 5. Modifications of the bibliography or webgraphyn It will be adjusted to relevant new developments as they arise.

Study programme competences / results	
Code	Study programme competences / results
A33	Coñecer os fundamentos científicos, matemáticos e tecnolóxicos do currículo desta etapa así como as teorías sobre a adquisición e desenvolvemento das aprendizaxes correspondentes.
A34	Coñecer estratexias didácticas para desenvolver representacións numéricas e nocións espaciais, xeométricas e de desenvolvemento lóxico.
A35	Comprender as matemáticas como coñecemento sociocultural.
A36	Coñecer a metodoloxía científica e promover o pensamento científico e a experimentación.
A39	Elaborar propostas didácticas en relación coa interacción ciencia, técnica, sociedade e desenvolvemento sustentable.
A40	Promover o interese e o respecto polo medio natural, social e cultural a través de proxectos didácticos adecuados.
A41	Fomentar experiencias de iniciación ás tecnoloxías da información e a comunicación.
B1	Aprender a aprender.
B2	Resolver problemas e tomar decisións de forma efectiva.
B3	Aplicar un pensamento crítico, autocrítico, lóxico e creativo.
B4	Traballar de forma autónoma con iniciativa e espírito emprendedor.
B5	Traballar de forma colaborativa.
B9	Autonomía na aprendizaxe.
B10	Capacidade de análise e síntese.
B11	Capacidade de busca e manexo de información.

B25	Utilización das TIC no ámbito de estudo e do contexto profesional.
C1	Expresarse correctamente, tanto de forma oral coma escrita, nas linguas oficiais da comunidade autónoma.
C3	Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida.
C4	Desenvolverse para o exercicio dunha cidadanía aberta, culta, crítica, comprometida, democrática e solidaria, capaz de analizar a realidade, diagnosticar problemas, formular e implantar solucións baseadas no coñecemento e orientadas ao ben común.
C6	Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse.
C7	Asumir como profesional e cidadán a importancia da aprendizaxe ao longo da vida.
C8	Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade.

Learning outcomes			
Learning outcomes	Study programme competences / results		
Identify the main characteristics that define play.	A33 A35 A36	B1 B3 B4 B5 B9 B10 B11	C3 C4 C6 C8
To critically review the classical theories of play and its relationship with learning.	A33 A35 A36	B1 B3 B4 B5 B9 B10 B11 B25	C1 C3 C4 C6 C7 C8
Analyze and evaluate the transmissions that occur in games.	A35	B1 B3 B4 B5 B9 B10 B11	C1 C4 C8
To classify games from different categorizations	A35	B1 B3 B4 B5 B9 B10 B11 B25	C6

To analyze traditional games and their educational potential	A35	B1 B3 B4 B5 B9 B10 B11	C3 C4 C6 C7
To design game proposals adapted to the cognitive and emotional development stages of students.	A33 A34 A35 A36 A39 A40 A41	B1 B2 B3 B4 B5 B9 B10 B11 B25	C3
To develop didactic proposals of games from a curricular perspective, giving special importance to the objectives related to mathematics.	A33 A34 A35 A36 A39 A40 A41	B1 B2 B3 B4 B5 B9 B10 B11 B25	C1 C3 C6 C8
To plan proposals that integrate multiple intelligences and articulate emotional intelligence in the learning of mathematics.	A33 A34 A35 A36 A39 A40 A41	B1 B2 B3 B4 B5 B9 B10 B11 B25	C1 C3 C4 C6 C7 C8
To apply a STEAM approach to game proposals.	A33 A34 A35 A36 A39 A40 A41	B1 B2 B3 B4 B5 B9 B10 B11 B25	C1 C3 C4 C6

To promote the use of ICT resources	A33 A34 A35 A36 A41	B1 B2 B3 B4 B5 B9 B10 B11 B25	
To use collaborative work as a strategy for learning and optimizing results.	A33 A34 A35 A36	B1 B2 B3 B4 B5 B9 B10 B11	C4 C6 C7
To enhance the capacity for assessment and constructive criticism through collaborative and peer evaluations.	A33 A34 A35 A36 A39 A40 A41	B1 B2 B3 B4 B5 B9 B10 B11	C4 C7 C8

Contents	
Topic	**Sub-topic**
Concept of play	Play as a universal cultural value Characteristics of play Classical theories about play Relationship between play and learning Relationship between play and child development Different classifications of play Transmission in games Play and the development of multiple intelligences

Didactic application of the game to mathematics	Game design Design of didactic proposals Elaboration of resources for the realization of games Transversal and STEAM proposals Design of dynamics that integrate mathematics and multiple intelligences.
Resources	Elaboration of digital portfolios Multimedia communication Review of the Early Childhood Education curriculum Criteria for the selection of reliable sources ICT and TAC resources and proposals
Evaluation strategies	Collaborative rubric design Peer assessment Portfolio assessment

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Introductory activities	A41 B1 B25 C6 C7 C8	1	0	1
Document analysis	A33 A34 A35 A36 A41 B1 B3 B4 B5 B9 B10 B11 B25 C1 C3 C4 C6	2	8	10
Collaborative learning	A33 A34 A35 A36 A39 A40 A41 B1 B2 B3 B4 B5 B9 B10 B11 B25 C1 C3 C4 C6 C7 C8	5	35	40
Workbook	A33 A34 A35 A36 B1 B3 B4 B5 B9 B11 B25 C1 C3 C4 C6 C8	2	8	10
Student portfolio	A33 A34 A35 A36 A39 A40 A41 B1 B2 B3 B4 B5 B9 B10 B11 B25 C1 C3 C4 C6 C7 C8	4	16	20
Mixed objective/subjective test	A39 B1 B2 B3 B4 B9 B10 C1 C6 C7 C8	2	2	4

Oral presentation	A41 B1 B2 B4 B5 B9 B10 B11 B25 C1 C3 C4 C6 C7 C8	2	0	2
Guest lecture / keynote speech	A33 A34 A35 A36 B11	13	7.5	20.5
Personalized attention		5	0	5
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	**Description**
Introductory activities	Introductory and motivational activities, based on collaborative games and supported by digital resources.
Document analysis	Guided review of different sources and resources for collaborative analysis and review of game theories.
Collaborative learning	Collaborative realization of tutored work: research, guided reading, game design, didactic proposal, elaboration of resources to support games, elaboration of mathematical/emotional dynamics and elaboration of multimedia presentations of the results.
Workbook	Guided and collaborative reading of the text Emotional Intelligence, by Daniel Goleman.
Student portfolio	Development in teams of a digital portfolio in which the learning processes and results will be organized, as well as the different evaluations (heteroevaluation and peer evaluation) and reflections on the subject.
Mixed objective/subjective test	Theoretical-practical written test in which special importance will be given to the application and reflection on the contents of the subject.
Oral presentation	Team presentations of the different tutored works, with the support of multimedia resources. For the presentation of the resources created, a video documenting the process will be made.
Guest lecture / keynote speech	Presentation of the different topics in which the necessary information will be presented as well as the orientation for the understanding of the topics covered and the subsequent development of the planned activities.

Personalized attention	
Methodologies	**Description**
Student portfolio Mixed objective/subjective test Collaborative learning Workbook Guest lecture / keynote speech Introductory activities Document analysis Oral presentation	Personalized attention will consist of accompanying each student in his or her learning process, through interaction in the classroom, e-mail and individual or small group meetings during tutoring hours.

Assessment			
Methodologies	**Competencies / Results**	**Description**	**Qualification**
Student portfolio	A33 A34 A35 A36 A39 A40 A41 B1 B2 B3 B4 B5 B9 B10 B11 B25 C1 C3 C4 C6 C7 C8	Digital document prepared in teams, reflecting the processes, results, resources used, reflections and evaluations of the different activities.	15

Mixed objective/subjective test	A39 B1 B2 B3 B4 B9 B10 C1 C6 C7 C8	Written test on the contents of the subject, in which special importance will be given to the application and reflection. This test may be voluntary, if the results in the rest of the sections are very satisfactory. In this case, the percentage of the grade will be divided between the portfolio (5%) and the collaborative work (10%).	15
Collaborative learning	A33 A34 A35 A36 A39 A40 A41 B1 B2 B3 B4 B5 B9 B10 B11 B25 C1 C3 C4 C6 C7 C8	Team work on the following supervised activities: research, guided reading, game design, didactic proposal, elaboration of resources to support games, and elaboration of mathematical/emotional dynamics.	30
Workbook	A33 A34 A35 A36 B1 B3 B4 B5 B9 B11 B25 C1 C3 C4 C6 C8	Guided and collaborative reading of the text Emotional Intelligence by Daniel Goleman.	10
Document analysis	A33 A34 A35 A36 A41 B1 B3 B4 B5 B9 B10 B11 B25 C1 C3 C4 C6	Guided search, selection and organization of information from different sources and resources for collaborative analysis of game theories.	15
Oral presentation	A41 B1 B2 B4 B5 B9 B10 B11 B25 C1 C3 C4 C6 C7 C8	Team presentations with the support of multimedia resources on the tutored work carried out. For the presentation of the created resource a video will be elaborated.	15

Assessment comments
Students who do not reach 80% in class attendance or 50% in the objective test will be evaluated in a final written test. In the second opportunity, students will be evaluated only by the grade of the final exam. Students will have the right to be evaluated in any of the vehicular languages in which the subject is taught.

Sources of information	
Basic	- Goleman, D. (1996). Inteligencia emocional. KAIROS .- HUIZINGA, J. : Homo Ludens. Alianza Ed. Madrid. 1972 .- CHATEAU, J. : Psicología de los juegos infantiles. Kapelusz.Buenos Aires. 1973. .- ELKONIN,D.B.: Psicología del juego. Pablo del Rio. Madrid. 1980 .- BANDET e SARAZANAS: El niño y sus juguetes. Narcea.Madrid.72 .- - (... específica en cada tema.) .- UNICEF : Juegos de todo el mundo. Edilán. 1978 .- BELL e CORNELIUS: Juegos con tablero y fichas. Labor. 1990 .- PERELMAN, Ya.I.: Problemas y experimentos recreativos. Mir, 1983. .- RODRIGUEZ VIDAL, R.: Diversiones Matemáticas. Reverte, 1985. AGOSTINI, F.: .- Juegos de lógica y matemáticas. Pirámide, 1990. .- BELL, R y CORNELIUS, M.: Juegos con tablero y fiches. Labor, 1990. .- BOLT, B.: Actividades Matemáticas. Labor, 1988 .- BOLT, B,: Divertimentos matemáticos. Labor, 1988. .- BOLT, B.: Aún más actividades Matemáticas. Labor, 1989. .- CARLAVILLA, J.L. y FERNANDEZ; M.: Construcción y Aplicaciones Didácticas de los cuadrados Mágicos I. Proyecto Sur 2000. .- CARLAVILLA, J.L. Si hay una X ¡¡¡hay matemáticas!!! Proyecto Sur, 2005. .- DEULOFEO, J.: Una recreación matemática: historias, juegos y problemas. Planeta, 2001. .- DORAN, JODY L. y HERNÁNDEZ, E.: Las Matemáticas en la vida cotidiana. Addison-Wesley, 1999. .- FERRERO, L.: El juego y la matemática. la Muralla, 1991. http://www.freeworldgroup.com/games4/gameindex/3dlogicgame.html http://curiosidadesyjuegos.blogspot.com/ http://acertijosymascosas.com http://www.freeworldgroup.com/games6/gameindex/lilly-hop.htm http://acertijosymascosas.com/juegos/bloxorz/ http://www.gamegecko.com/puzzlequest.php http://bezumie.com/ram/index.php http://www.biometricgames.com/re/ http://www.minijuegos.com/juegos/jugar.php?id=444 http://juegosdeescape.es/?page_id=178 http://acertijosymascosas.com/juegos/puzzle-de-ingreso-en-el-ejercito/ http://www.troyis.com/troyis.php http://www.freeworldgroup.com/games6/gameindex/math-mountain.htm
Complementary	- Goleman, D. (1996). Inteligencia emocional. KAIROS

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Other comments
It is recommended to send the work telematically and, if not possible, not to use plastic, to choose double-sided printing, to use recycled paper and to avoid printing drafts.The sustainable use of resources and the prevention of negative impacts on the natural environment should be taken into account.The importance of ethical principles related to sustainability values should be taken into account in personal and professional behavior.